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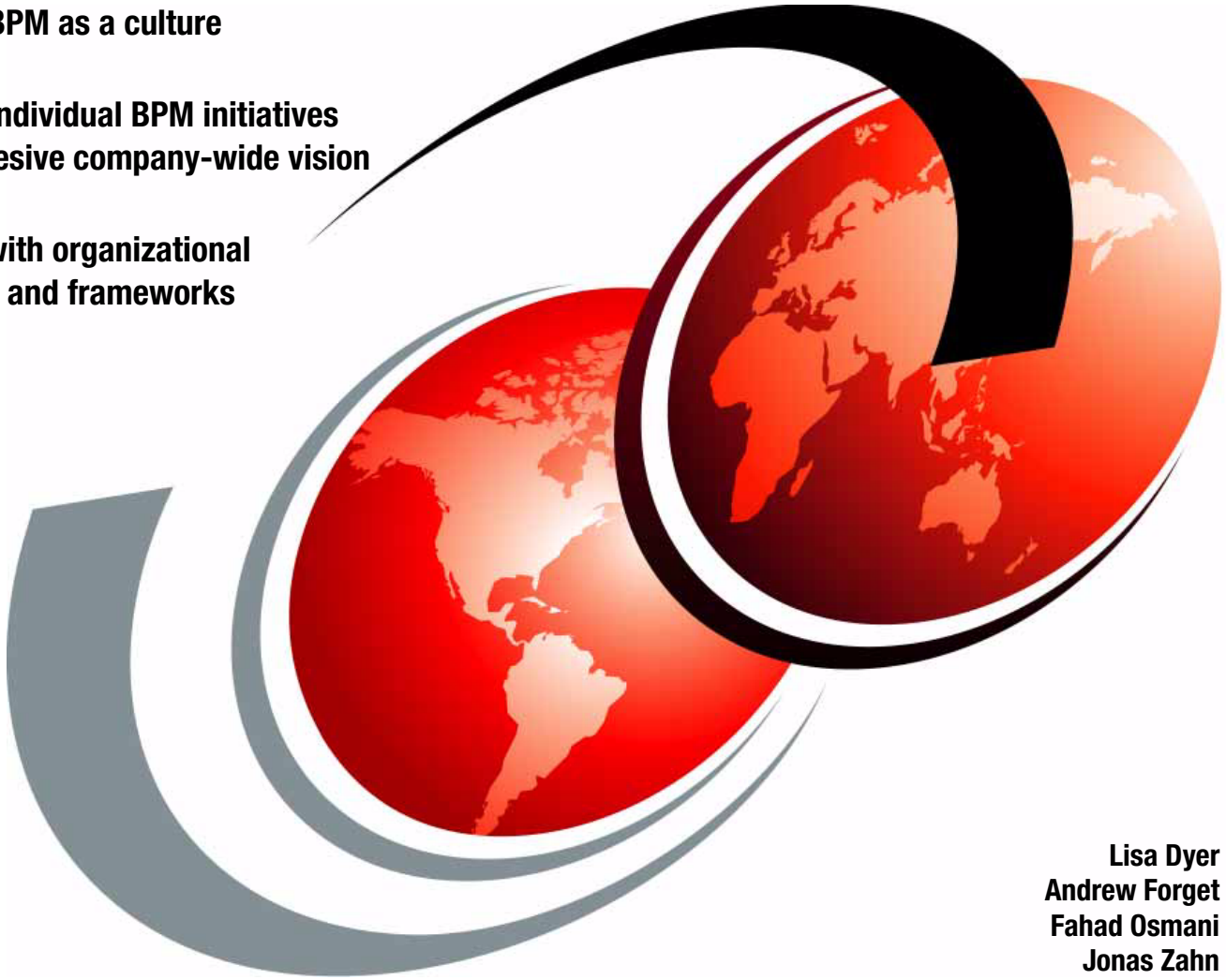
Creating a BPM Center of Excellence (CoE)

- Transform your entire enterprise to embrace BPM as a culture
- Organize individual BPM initiatives into a cohesive company-wide vision
- Succeed with organizational structures and frameworks



Lisa Dyer
Andrew Forget
Fahad Osmani
Jonas Zahn

Redpaper

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International Technical Support Organization

Creating a BPM Center of Excellence (CoE)

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Preface

Your first business process management (BPM) projects, although radically different in the tooling and the methodology for those people who are directly involved in the project, will be chartered, funded, measured, and managed as with any other IT project. However, for an enterprise to accelerate the radical value that a BPM project proves, the enterprise must transform. Change must occur around projects. Funding, staffing, governance, infrastructure, and virtually every aspect of how BPM solutions are implemented, must change before the enterprise can mature to meet those strategic goals that accelerate the value of BPM beyond a handful of projects.

This change is the BPM transformation. Unlike the challenges of the first few BPM projects, this transformation represents an unprecedented challenge to those enterprises that are midway through the pursuit of BPM excellence.

This IBM® Redpaper™ publication seeks to eliminate the uncertainty that organizations face in this next generation of BPM, maturing beyond the success of BPM projects. The goals and concepts of dozens of mature BPM organizations are consolidated here and categorized to provide you with clear mandates, with hope that this clarity will provide purpose, and that this purpose will drive excellence. The audience for this IBM Redpaper includes Executive Sponsors, Team Leaders, Lead Architects, Infrastructure Owners, and in general, anyone interested in transforming the enterprise around BPM principles to create a Center of Excellence (CoE).

The team who wrote this paper

This paper was produced by a team of specialists from around the world working at the International Technical Support Organization, RTP.

Lisa Dyer leads the business of community for the IBM BPM line of business. As a Community Strategist, she works closely with practitioners, often using an adhocratic management style to foster the kind of cultural transformation that leads to the democratization of business improvement. Lisa holds a degree in Design from Finland, and has been in the software business for over 15 years. She has written extensively about business process implementation and improvement.

Andrew Forget is a BPM Technical Architect for IBM North America. He has nine years of experience working in the field with very large BPM deployments. He has more than 20 years of experience in the software industry. Andy studied Computer Science at the University of New Mexico. His areas of expertise include scalable BPM topologies and capacity planning. He is a leading contributor to the BPM practice, in regards to organization and methodologies.

Fahad Osmani is a BPM and Decision Management Product Manager for IBM North America. He has nine years of experience working in the field with BPM methods and technology, and has over 10 years of experience working in the software industry. He holds a degree in Computer Science and Mathematics from the University of Texas at Austin. His areas of expertise include organizational design and solution implementation best practices for BPM Services. Fahad has written extensively about methodology, design patterns, and best practices for BPM Services, including the publication *Scaling BPM Adoption: From Project to Program with IBM Business Process Manager*, SG24-7973.

Jonas Zahn is a BPM Solution Architect for IBM North America. He has eight years of experience working with BPM methods and technology and more than 12 years of experience in software development. Jonas holds a degree in Civil Engineering from the University of Wisconsin at Madison. His areas of expertise include business process modeling, analysis, optimization, and implementation. Other areas of expertise include BPM program planning and initiation. Jonas has written extensively on best practices in BPM modeling and implementation.

Thanks to the following people for their contributions to this project:

- Sean Pizel: IBM BPM Services Practice Manager
- Franclim Bento: Banco Espirito Santo, BPM and ECM Chief Architect
- Dawn Ahukanna: IBM BPM Technical Architect
- Phil Gilbert: Vice President, IBM Business Process and Decision Management
- Jean Pommier: Distinguished Engineer and CTO, Software Services for IBM WebSphere®
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Introduction

There are no easy answers, but there are simple answers. We must have the courage to do what we know is ... right.

This adage (from President Reagan) is a reminder that as nascent BPM programs around the world have matured over the last decade, so have the challenges that are encountered and goals sought. Your enterprise no longer needs to prove the value of BPM, but needs to accelerate it. The challenges in doing so are complex and numerous, as are the teams that are chartered to address them. These teams are defined by the new generation of challenges they seek to surmount, the risks they hope to abate, and the promises they hope to fulfill.

Consider Figure 1-1. Might this diagram reflect reality within your enterprise?

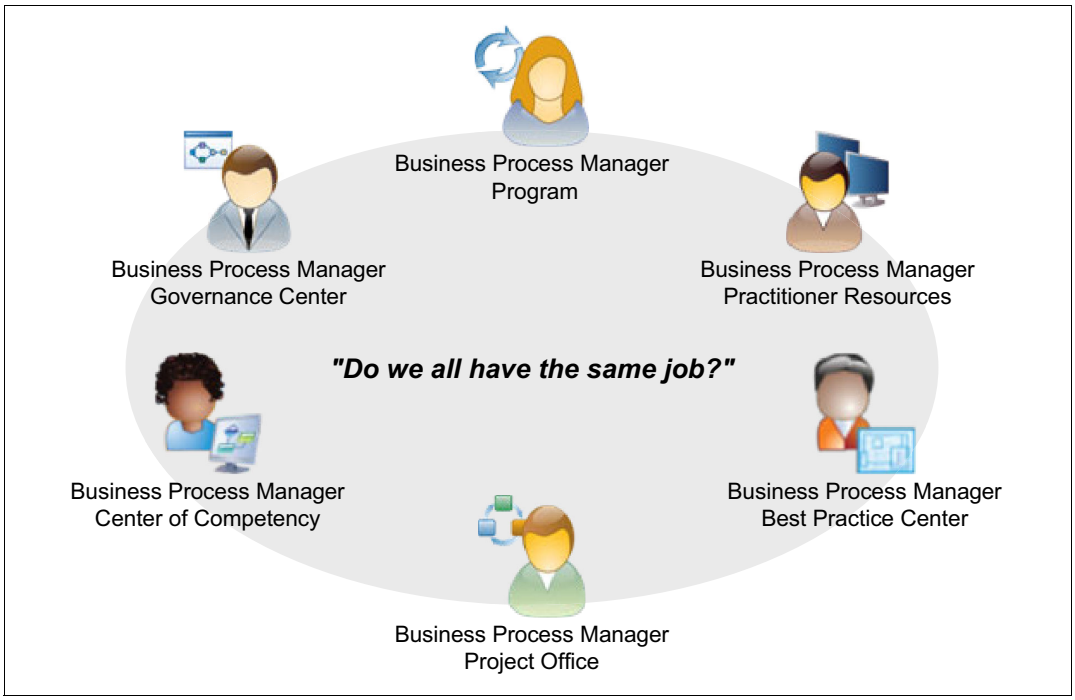

Figure 1-1 BPM team roles

As mentioned previously, your first BPM projects, although radically different in the tooling and the methodology for those directly involved in the project, will be chartered, funded, measured, and managed as with any other IT project. The challenges of an initial BPM project are the same kind as traditional IT development. Analysts still participate. Although they might engage the line of business and document processes differently, these radical differences are not visible at higher levels in the enterprise.

Applications are still developed, tested, and deployed. Although these applications are re-envisioned in a "process" context and prioritized from a perspective on business value, this radical change is experienced only by those directly involved with your first BPM projects. Senior management might be aware that *something* is radically different in these BPM projects, but this level of the organization is unchanged. Under the penumbra of "project," there are many differences, but from an elevated point of view, most aspects appear the same as before BPM.

For an enterprise to accelerate the radical value that a BPM project proves, the enterprise must transform. Change must occur around projects. Funding, staffing, governance, infrastructure, and virtually every aspect of how BPM solutions are implemented must change before the enterprise can mature to meet those strategic goals that accelerate the value of BPM beyond a handful of projects. This change is the *BPM transformation*. Unlike the challenges of the first few BPM Projects, this transformation represents an unprecedented challenge to those enterprises that are midway through the pursuit of BPM excellence.

This Redpaper seeks to eliminate the uncertainty that organizations face in this next generation of BPM: maturing beyond the success of BPM projects. The goals and concepts of dozens of mature BPM organizations are consolidated here and categorized to provide you with clear mandates, with hope that this clarity will provide purpose, and that this purpose will drive excellence. The intended audience for this Redpaper includes Executive Sponsors, Team Leaders, Lead Architects, Infrastructure Owners and Process Excellence leads that are an implied part of your BPM Center of Excellence as it takes shape.

1.1 The need for a BPM governance organization

Transforming your enterprise requires time and patience, investment in people and technology, and commitment from executive leadership, middle management, and the workforce.

Although most BPM projects begin as individual, loosely connected (or entirely disconnected) efforts, today's operational landscape demands scalability and enterprise-wide adoption, which eventually necessitates bringing individual BPM projects together in a consolidated BPM program.

To meet the demand of scalability and enterprise-wide adoption of BPM, a BPM Center of Excellence (CoE) must address the following key focus areas of responsibility:

- Defining a higher *business goal or vision*, driving BPM initiatives and aligning individual projects with that vision
- Executing a *scalable delivery* resource model for discovering, implementing, deploying, managing, and supporting BPM initiatives
- Administering a *shared infrastructure* for hosting and maintaining the solutions that are the outcomes of BPM initiatives

Through experience with both successful and challenged BPM program initiatives, we learned that the following aspects are true:

- A BPM initiative can survive only by achieving business value; and business value must support the strategic objectives of the organization. Business value must be measured objectively with supporting data and be easily visible and communicated to leadership. Without demonstrating business value, the BPM journey will end, or stagnate at best.
- The transformative nature of BPM requires a shared infrastructure (a BPM system, or BPMS) that scales with a growing demand for BPM projects. This shared infrastructure must support the collaborative aspects and governing demands of BPM as a discipline.
- The purpose of a BPM initiative is to create a repeatable delivery model for improving business performance. Long-term success depends entirely on establishing a scalable BPM delivery model as a discipline. Focusing on organizational enablement in BPM methods is essential for an uninterrupted BPM journey. Without BPM method enablement, even the best BPMS will achieve no value.

1.2 The pillars of a BPM governance organization

Throughout this IBM Redpaper, we use the following terms to represent the three key focus areas and the responsibilities in each that must be fulfilled to completely address BPM governance. Although it is possible for a single governing group of people to have all three of these responsibilities, a more likely approach is that certain individuals within the group will carry one or more of these responsibilities by committee. Each responsibility is unique in its charter and requires individuals with appropriate levels of authority, skills, and experience to carry out its charter.

- Strategy

  This key focus area is responsible for defining business goals and setting the course for BPM initiatives across a broad area; likely, the entire business enterprise. The scope of responsibility includes strategy and long-term planning for the overall BPM initiative, BPM advocacy within the organization, a funding model for the BPM program, and tracking key performance indicators (KPIs) along an enterprise-wide value chain to measure the success of the overall BPM initiative beyond the tactical success of individual projects.

- Delivery

  This key focus area is responsible for creating a scalable delivery model for staffing and delivering BPM initiatives. This responsibility includes sourcing, enabling, staffing, and retaining BPM talent. It also includes creating, maintaining, and governing tactical best practices for the entire BPM project lifecycle.

- Shared infrastructure

  This key focus area is responsible for designing, building, and governing a shared infrastructure (a business process management system, or BPMS) that is used for hosting, executing, and maintaining the process applications that are the outcomes of BPM initiatives. This responsibility includes hardware configuration, software installation, administration, upgrades, deployment, and maintenance.

1.3 Scope of this paper

The three key focus areas (strategy, delivery, and shared infrastructure) have related but distinctly separate mandates. Each is supported by individuals who possess the correct range of authority, skills, and experience. In this IBM Redpaper, we outline a broad framework of areas of responsibility, activities, recommended organizational structure, and skills required to succeed with the governing responsibilities in each of these key focus areas.

This framework is not meant to be a detailed blueprint for building your own central BPM governing organization. But it should inform those efforts. It is also not meant to be a panacea to ailing individual projects. A framework for succeeding with individual projects is covered in *Scaling BPM Adoption: From Project to Program with IBM Business Process Manager*, SG24-7973:

http://www.redbooks.ibm.com/abstracts/sg247973.html

2

Strategy

This chapter describes the key focus area of strategy in a BPM Center of Excellence. This chapter contains the following topics:

2.1 Purpose of strategy in a BPM CoE

In a 2012 Gartner CIO survey[1], CIOs across industries named the following top 12 priorities:

- Increasing enterprise growth
- Attracting and retaining customers
- Reducing enterprise costs
- Creating new products or services
- Delivering operational results
- Improving efficiency
- Improving profitability
- Attracting and retaining the workforce
- Improving marketing and sales effectiveness
- Expanding into new markets
- Improving governance, compliance, risk
- Implementing finance and management controls

Four of the top six priorities are process-related, process-driven, or processes themselves.

Given this increasing importance of process management and governance for chief business executives, it is now more important than ever for any BPM-related initiative to have a governing body that sets goals, seeks visibility, and drives change at a level that is directed specifically at executive leadership of the organization. This importance, in summary, is the purpose of the BPM Center of Strategy.

2.2 Areas of responsibility for strategy in a BPM CoE

Broadly, the domains of concern that fall under strategy can be organized as follows:

- Vision, goals, strategy, and KPIs for the overall BPM Initiative
- Organizational awareness, education, and advocacy
- Funding model for individual BPM initiatives
- Funding for governing body including both resource allocation and enablement
- Inventory of processes along the enterprise value chain[2]

In addition to instituting definitions of each of these domains, the strategy element of a BPM CoE must engage in activities that advance and implement them. For an in-depth view of these domains, see 2.4, “Areas of responsibility in depth” on page 7.

2.3 Organization of strategy in a BPM CoE

After these areas are specifically identified and given concrete articulation, giving shape to the actual organization that will advance the areas of responsibility becomes important. This organization can be envisioned in the following typical areas:

- Roles
- Skills
- Organizational Structure

For an in-depth view of these areas, see 2.5, “Organization in depth” on page 23.

[1] http://www.gartner.com/technology/cio-priorities/2012-cio-agenda.jsp

[2] Enterprise value chain is an industry standard framework for analyzing and connecting the key business value pillars of an organization and tracing tactical activities back to these high-level pillars.

2.4 Areas of responsibility in depth

A BPM CoE must articulate and drive an enterprise-level strategy (from a business and a technology perspective) for all BPM initiatives across the entire organization.

This mandate can generally be divided into the following categories:

- "Vision, goals, strategy, and KPIs for the overall BPM initiative"
- "Organizational awareness, education, and advocacy" on page 10
- "Funding model for BPM initiatives" on page 11
- "Inventory of processes along the enterprise value chain" on page 15

2.4.1 Vision, goals, strategy, and KPIs for the overall BPM initiative

Creating a vision of a desired outcome from the BPM initiative is one of the first responsibilities of the strategy element of a BPM CoE. This vision should articulate the current state that gave rise to the need for BPM within the organization, the high-level challenges that must be overcome by using the BPM initiative, and what the shape of the organization will look like after these challenges are overcome.

Sample vision statements for enterprise BPM initiatives:

- Reduce the "time to decision" for our customer so that we can take a larger market share from our chief competitor.
- Increase visibility of KPIs to allow the company to be more agile in the marketplace by focusing our activities.
- Reduce cost of sales by shorting all related administrative processes.
- Increase customer satisfaction by reducing the amount of rework done in any customer contact processes.

The goals for the BPM initiative should be measurable and clearly in support of the vision. We suggest following the SMART paradigm, which is the industry standard framework for creating goals. SMART has the following meaning:

- Specific
- Measurable
- Attainable
- Realistic
- Timely

See the Goal Setting Guide website for more information:

http://www.goal-setting-guide.com/goal-setting-tutorials/smart-goal-setting

Taken together, the vision and the goals should complement each other in creating a standing business case for BPM throughout the organization.

Sample goals to support your vision statement:

- Reduce cost that is related to process-rework by 75% across the value chain.
- Institute standard process visibility metrics for every operational process.
- Reduce time to return customer contact by 50%.

An important note is that the vision and goals stated here are not limited to the BPM CoE itself, but rather to the entire BPM initiative, which can include all other organizations related to governing, operationally executing, or benefiting from BPM.

These goals must be a good mixture of end-states beyond which the problem can be considered solved, *and* a set of *in perpetuity* goals that should continue to carry and support your journey toward full BPM maturity.

After the first draft of the vision and goals are in place, the strategic element of the BPM CoE is responsible for creating high-level guidelines, key strategic decisions, and a sequence of significant planned events. The sequence should form a timeline that supports the achievement of the goals, and thus, the vision. The guidelines, decisions, and the event timeline can serve as a planning and strategy guide that informs the overall BPM initiative at various stages of maturity, in areas of technology and also business strategy.

Sample strategy assets that can support your goals:

- A representation of the Enterprise Value Chain (EVC) for your organization.
- Technology guidelines, such as the following examples:
  - We will use an enterprise service bus for all integrations necessary for any BPM solutions.
  - The BPM platform must not be the business data system of record for any BPM solutions.
  - BPM technology should be used only to implement business solutions where there is a clear fit-for-purpose (as defined by the Center of Strategy).
- Business solution guidelines, such as the following examples:
  - All BPM solutions should provide KPI reports that demonstrate the assumed return on investment (ROI) for implementing the solution.
  - All BPM solutions should provide an increasing level of change control directly to the business audience, without sacrificing risk mitigation and auditability.
- Key technology decisions, such as the following examples:
  - We use IBM FileNet® for any content management-related aspect to a BPM solution.
  - We use IBM Operational Decision Manager for any advanced rules-related aspect to a BPM solution.
  - We need to “sunset” the heritage workflow platform.
- Key business decisions, such as the following examples:
  - Streamlining business processes related to customer service carry a higher priority than all other business processes.
  - Phase 1 of any partner-related business process needs to be optimized for these top three partners first and the remainder can be addressed in Phase 2.
- Key technology events timeline
- Key business events timeline

Depending on the ambition of the vision, the effort required to achieve the goals, and the aggressiveness of the timeline, you can elaborate or abbreviate the level of detail required of the strategy to suit the situation.

Key performance indicators

A crucial point to understand is that the creation of the vision, goals, and strategy will not by itself achieve any benefit for the organization. What is required to realize tangible benefit is to also own the driving of your ideas to tactical depth, by being actively involved in individual BPM projects, and by using the projects as vehicles to advance your strategy. The immediate results of those projects will create benefits that might initially seem unrelated to the enterprise goals and strategy, but are in fact leading indicators of improvement that directly affect the mandate of the BPM CoE. These leading indicators are commonly called *key performance indicators* (KPIs).

KPIs must be predetermined by the strategy element of the BPM CoE, as the framework within which evidence of strategic progress is gathered.

Sample KPIs with which to evaluate the success of your strategy:

- BPM releases per year
- Development cost per process step
- Per-process ROI or time to break even
- The reuse dividend, which is time or money that is saved because of reusable assets

  Reuse alone without including cost is misleading.
- Post-assessment health check score of projects
- The number of integration methods, systems of record, legacy BPM, and decision management systems retired
- The percent of business investment per release (how much work was done outside of IT)

Supporting activities

Activities can be initial and perpetual.

Sample supporting activities for defining, monitoring, and driving vision, strategy, goals, and KPIs:

The *initial* activities are as follows:

- Defining an enterprise value chain
- Defining a specific vision, set of goals, and timeline for goals
- Defining key technology and business guidelines for the entire initiative

A *perpetual* activity might be a regular meeting to accomplish the following tasks:

- Address key technology and business decisions that impact the BPM initiative and fall under the initial guidelines
- Examine the results of established KPIs to determine if the overall BPM initiative is moving in the correct direction
- Maintaining and adjusting the initial vision, goals, strategy, timeline, and guidelines to keep up with on-the-ground realities

2.4.2 Organizational awareness, education, and advocacy

An important aspect of a BPM CoE is to cultivate and elevate *cultural awareness* of BPM throughout the enterprise. Simply stated, cultural awareness means leading the charge for using BPM in areas of the organization that have not already embraced BPM.

This responsibility is perhaps the most important for the strategy element of the BPM CoE, second only to the “vision, goals, and strategy” mandate. The primary mission of the CoE, which is to shepherd enterprise-level BPM initiatives, cannot be accomplished without expanding the BPM footprint beyond its initial introduction to the business. This expansion is much more likely to be successful if it stems from a desire and confidence to use BPM to solve a real business problem, rather than by corporate mandate.

Increasing awareness, education, and general appetite for BPM should be reflected directly within the vision, goals, strategy, and KPIs that are defined by the Center of Strategy. This area is also where developing a plan or compiling artifacts does not address the gap by itself. The Center of Strategy must proactively and regularly engage key decision makers in the larger organization outside the BPM ecosystem with the express goal of greater BPM adoption. Adoption can be measured by KPIs that seek to measure the number of areas in the enterprise value chain that are using BPM as a prime driver.

Sample KPIs that measure successful BPM cultural adoption:

- Distinct contributors to process discovery (participating IBM Blueworks Live™ accounts)
- Playback attendance (greater weight given to sponsors, process owners, SMEs, end users)
- Number of playbacks (formal and informal) per project per unit of time
- Number of releases (updates to production) per project per unit of time
- Inventory completion percent (how many processes against the enterprise value chain have been identified and documented in Blueworks Live)
- Inventory categorization percent complete (of the identified processes, how many have been categorized against the inventory guidelines)

For more information, see “Inventory guidelines” on page 15.

Supporting activities

Supporting activities might include reviews, education, and outsourcing tasks.

Sample supporting activities for driving cultural advocacy, education, and awareness of BPM:

- Business valuation reviews for projects, measuring KPIs are alignment with enterprise value chain
- Regular open-attendance BPM education forums
- Crowdsourcing a process inventory and refining it with experts later

2.4.3 Funding model for BPM initiatives

The funding model concept for BPM initiatives exists at two levels:

- This more direct level is the funding model for the BPM CoE itself including the different elements of strategy, delivery, shared infrastructure.
- This level is a common funding model for individual BPM projects that are governed by the BPM CoE.

When planning for a BPM initiative, you must account for the time and cost that are associated with talent acquisition, knowledge sharing, skills development, not just resource “head” count and infrastructure assets.

Funding model for governance organizations

The simplest possible solution to funding a governance organization is to have it funded directly out of the office of the CIO. This solution has the advantage of bringing a clarity of mission, focus, and expected results to the organization.

As the organization grows and the volume of projects that require governance increases, it will become necessary to have the fixed costs be funded by the CIO’s office and the variable and volume-related costs driven by a internal-cross-billing model that charges the individual business units for their projects (or shared portion of) directly.

The hybrid model for drawing a portion of the funding directly from individual projects can be a recognition of the benefits that are gained by the individual projects through the use of resources from the governing organizations. Resources might include common reusable assets (technical and business), guidance, reviews, best practices, and shared infrastructure. In effect, this can be viewed as a BPM tax in exchange for participating in the BPM ecosystem.

Figure 2-1 describes this model.

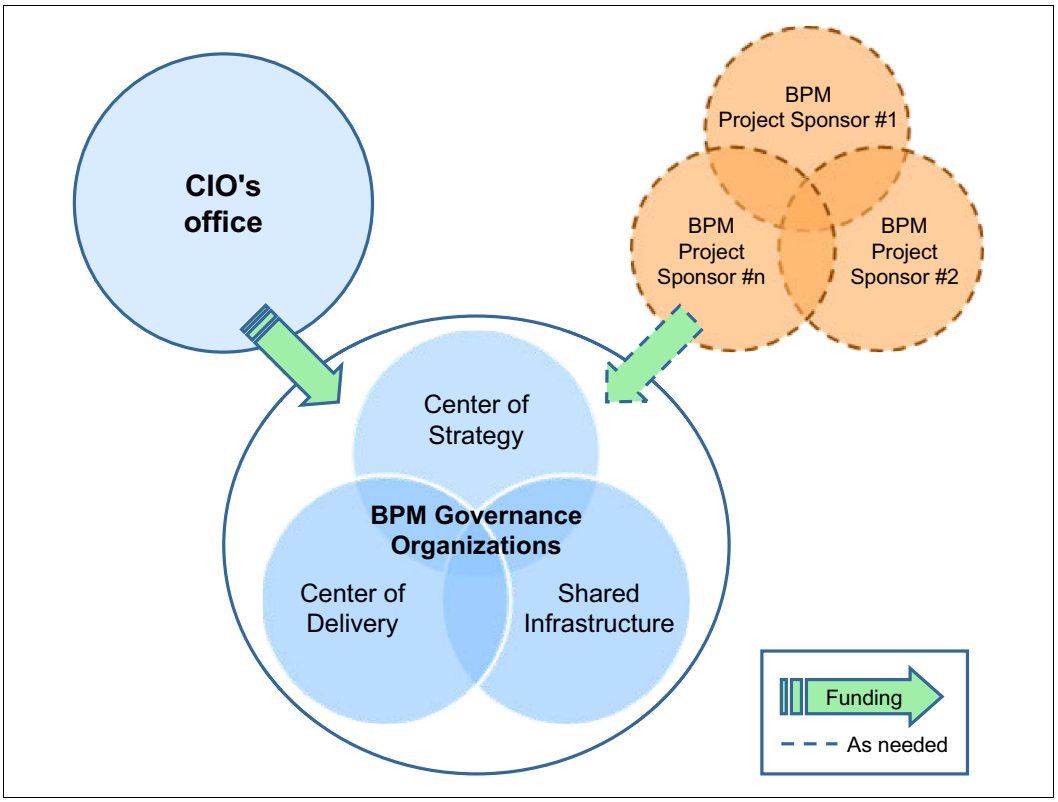

Figure 2-1 CIO funding model

Funding model for individual projects

Initially, most BPM projects are funded directly by the business area that needs a BPM solution, and are consumed by a specific IT organization that serves that business area. Your first project (maybe two) might entirely fund the initial delivery and infrastructure for BPM. (For this reason, first projects must adhere closely to corporate strategy with large and visible business value.)

However, as the BPM organization matures and achieves enterprise-wide adoption, it is beneficial to combine this point-to-point funding model with a common funding model that is used to gain access to an enterprise-wide BPM ecosystem. The goal of such access is to drive consistency in terms of how the ROI for each individual project is framed within the context of strategic BPM goals. This concept is the same maturity concept in the way that we see no individual business unit paying for all of the hardware and software infrastructure that is required to read and send email throughout the enterprise; although early adopters of email might have carried the entire burden of the original investment.

Over time, as this shared ecosystem develops and demonstrates the ability to successfully and repeatedly deliver individual BPM projects (the element of *delivery* in your BPM CoE), the need for a point-to-point funding model diminishes and a single, consolidated funding model emerges.

This centralized model will grow beyond providing oversight and delivery and evolve into a funding office where projects without existing funding can propose a business case and apply for funding.

The actual implementation of funding models can vary significantly from one organization to another depending on their larger financial model. Looking beyond the specific implementation, the primary aim of a central funding model is to drive consistency and alignment, and the secondary aim is to provide a source (or brokerage) of funding for BPM initiatives that seek funding.

Figure 2-2 and Figure 2-3 on page 14 show how this funding model evolves.

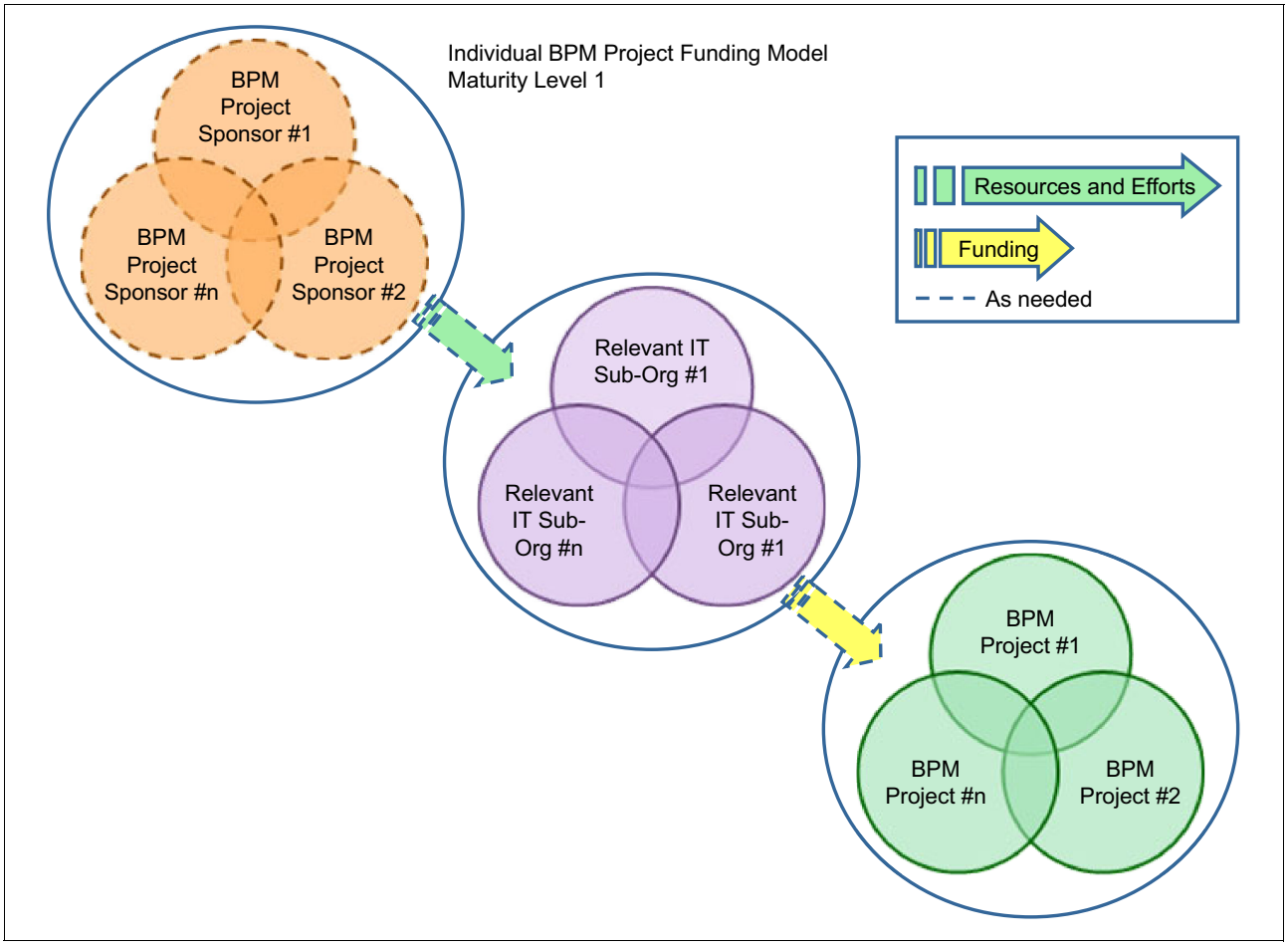

Figure 2-2 Individual project funding model (early stage)

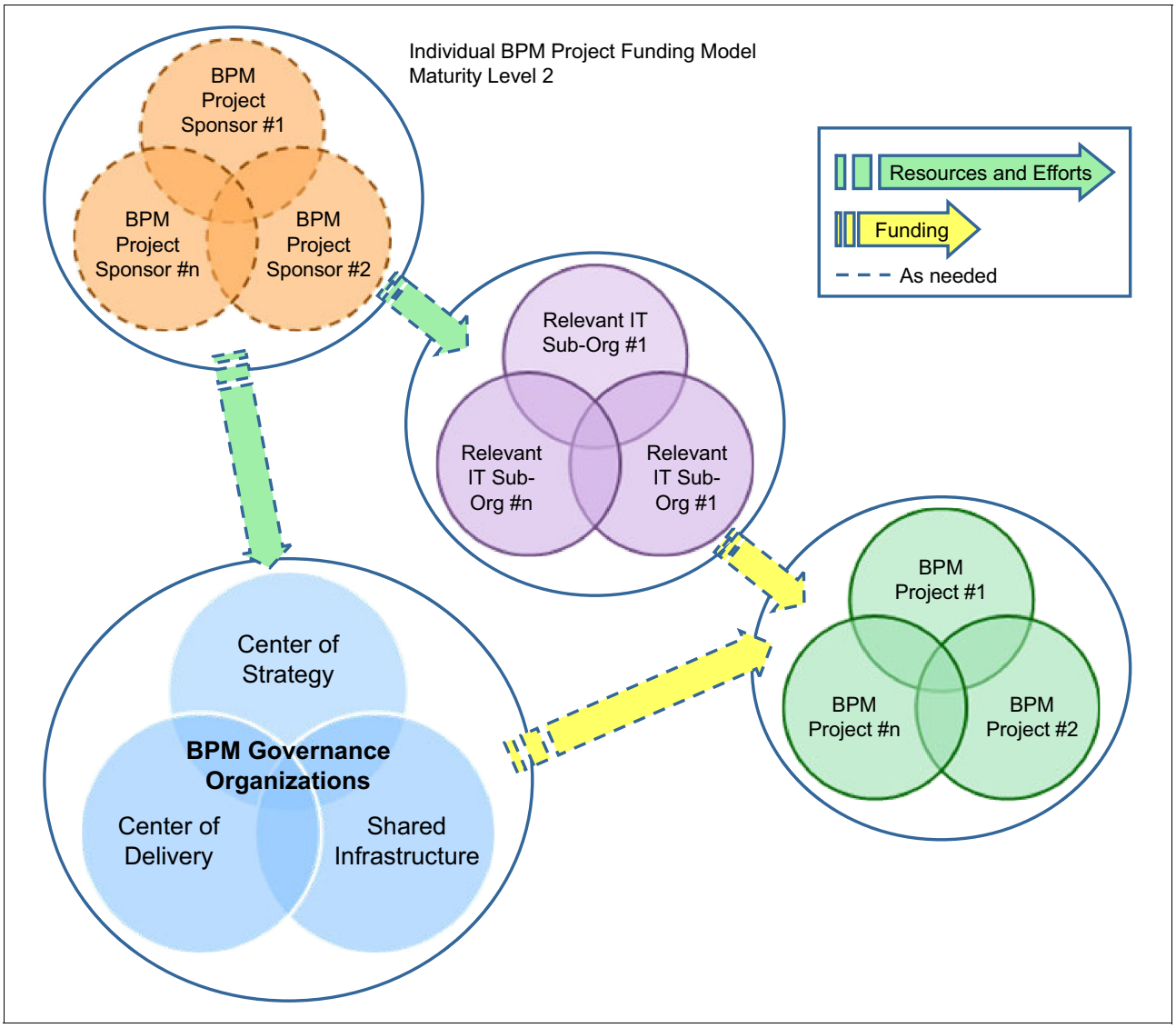

Figure 2-3 Individual project funding model (late stage)

Supporting activities

Develop a framework, price, and timeline.

Sample supporting activities for creating, driving and maintaining a BPM initiative funding model:

- Developing and executing a framework for chartering a BPM project
- Developing and presenting a price-case for a variety of funding models along with a timeline in which each model becomes viable

2.4.4 Inventory of processes along the enterprise value chain

This section describes the following information:

- The value of doing a process inventory
- Framework for doing process inventory and analysis
- Analysis guidelines
- Supporting activities

The value of doing a process inventory

The initial use of BPM to address business problems with process-oriented solutions is typically of primary value in the immediate business areas. Some early projects might also be valuable for the operational experience with BPM and a BPMS.

However, after an enterprise value chain is defined as part of the *vision, goal, and strategy* mandate, an important step is to identify key supporting processes that drive the enterprise value chain. These key processes exist within a context and framework that immediately has enterprise-wide strategic importance and should not require you to build a new business case when it comes time for implementation.

The exercise of discovery, identification, and documentation is commonly known as an *inventory*. The goal is to identify a pipeline of special processes that inherently have enterprise-level value and directly affect the vision, goals, and strategy that are defined by the strategy element of the BPM CoE. These processes should be treated differently from other processes that are not directly related to the enterprise value chain.

What differentiates these key processes from other processes is their implied higher ROI, which justifies accelerating the funding to implement them. Also, addressing key processes through BPM can affect the KPIs that are used to measure the success of BPM in a much more direct way than other processes that are not related directly to the enterprise value chain.

The greater mandate of overseeing and aligning *all* BPM projects within the enterprise is what sustains the initiative, the real goal of the BPM CoE is to complete the inventory and process improvement implementation of key processes on the enterprise value chain.

Framework for doing process inventory and analysis

A process inventory exercise spanning the entire value chain usually yields a large number of processes and can potentially take a long time, depending on the depth of analysis and time that are devoted to each process.

To effectively manage the time and effort required to complete a process inventory we provide a few basic guidelines and best practices that should allow the strategy element of your BPM CoE to produce actionable results in a bounded effort.

Inventory guidelines

The inventory framework is based on the following basic guidelines:

- Distribute the process inventory data-gathering activities

  Although the process inventory should be centralized, there is no reason to centralize the data-gathering activities. Be sure the business units (divisions, departments, teams) catalog their processes (see Table 2-6 on page 22) and submit to the BPM CoE for further analysis and prioritization.

- Various process improvement tactics can exist, which vary in degree of effort and automation.

An individual process from the inventory is likely to benefit the most from only one of the tactics at any level of maturity.

- Not all processes in the inventory can benefit from a full BPM automation project.

  Identifying and documenting these processes is still valuable because they *will* likely benefit from one of the process improvement tactics (outlined in this section). Therefore, it is also valuable to go through a categorization exercise that attempts to align each process identified in the inventory against the appropriate process improvement tactic from which it can benefit the most (as determined by the Process Inventory Analysis Framework).

- Processes categorized along the Process Improvement Tactics matrix will likely be weighed more heavily toward standard operating procedure (SOP) optimization than toward full BPM automation

  Few processes warrant the high cost of fine-grain automation against the expected ROI. However, an important point to note is that we have an entire spectrum of process improvement tactics to choose from, and that a full automation project is not the only option.

Table 2-1 describes the process guidelines.

Table 2-1 Inventory process guidelines

Process improvement tactic	Explanation	Typical symptoms
Leave Alone	No incentive to improve. ROI from process improvement effort is too low.	Ad-hoc processes happen infrequently or are processes already and will not benefit from further improvements.
Standard Operating Procedure (SOP) Optimization	Significant room for improvement by analyzing and optimizing the SOP without BPM automation.	Processes are performed with a script (over the phone or in person).
Blueworks Live (BWL) Automation	Significant room for improvement by the automation capability in Blueworks Live without BPM automation.	Processes are conducted today in email or recurring meetings.
Business Process Manager (BPM) Swivel-Chair Automation for Consistency	Significant value from consistency improvement by a orchestration and automation within BPM. All individual activity-level-automation is kept at the check-list level (*Swivel* over to X system and do Y. *Swivel* back and click **Finished** when done with this checklist). This step might also be called *coarse grained automation.*	Primary opportunity for value is increased consistency (everyone does the same thing the same way) in the process. Processes often exhibit symptoms of rework. Processes can also benefit from enhanced visibility using BPM reporting and analysis tools, with the intent of gaining operational efficiency (workload balancing, and threshold fine-tuning).

Process improvement tactic	Explanation	Typical symptoms
BPM Swivel-Chair Automation for Visibility	Not enough is known about this process to place it in one of the other “Process Improvement Measure” categories. A swivel-chair approach (described in the previous row) is called for, but primarily for the purpose of increasing visibility and diagnostics about the process. The intent here is a short period of swivel-chair automation, with predesigned, targeted reports that yield a fresh categorization in this matrix after the pilot period.	Processes where the primary opportunity is unclear and more visibility or analysis is needed. Processes can benefit from further analysis with BPM tools (custom reports, optimizer, and so on) and a recategorization in the matrix following the analysis.
BPM Hybrid Automation	Significant room for improvement in both consistency and some (but not all) individual activity automation. This process is orchestrated through BPM and some individual activities are also automated with a direct integration to the back-end system where the work is supposed to be done. Some other activities may remain in the *swivel-chair* realm as defined above as. In this hybrid mixture of swivel-chair and automated activities, the automated activities have a high expected ROI and the swivel-chair activities do not. Individual activity automation can also be called *fine grained automation*.	Processes where there is a clear benefit from automation, visibility and control, across the board at a Coarse Grain level, and in a limited fashion at the Fine Grain level. However, this benefit comes at a high integration effort cost. Some of the integrations involved with individual activities in these processes are non-value-added and thus should be done through the Swivel-Chair approach.
BPM Full Automation	Significant room for improvement in both consistency and all individual activity automation. This process is orchestrated through BPM and all individual activities are also automated with a direct integration to the back-end system where the work is supposed to be done. All individual activities have a high expected ROI.	These processes have a clear benefit from automation, visibility and control, both at a coarse-grain and at a fine-grain level, throughout. The cost of integrations is manageable and commensurate with the benefit that is gained by process improvement.

Figure 2-4 shows the inventory process.

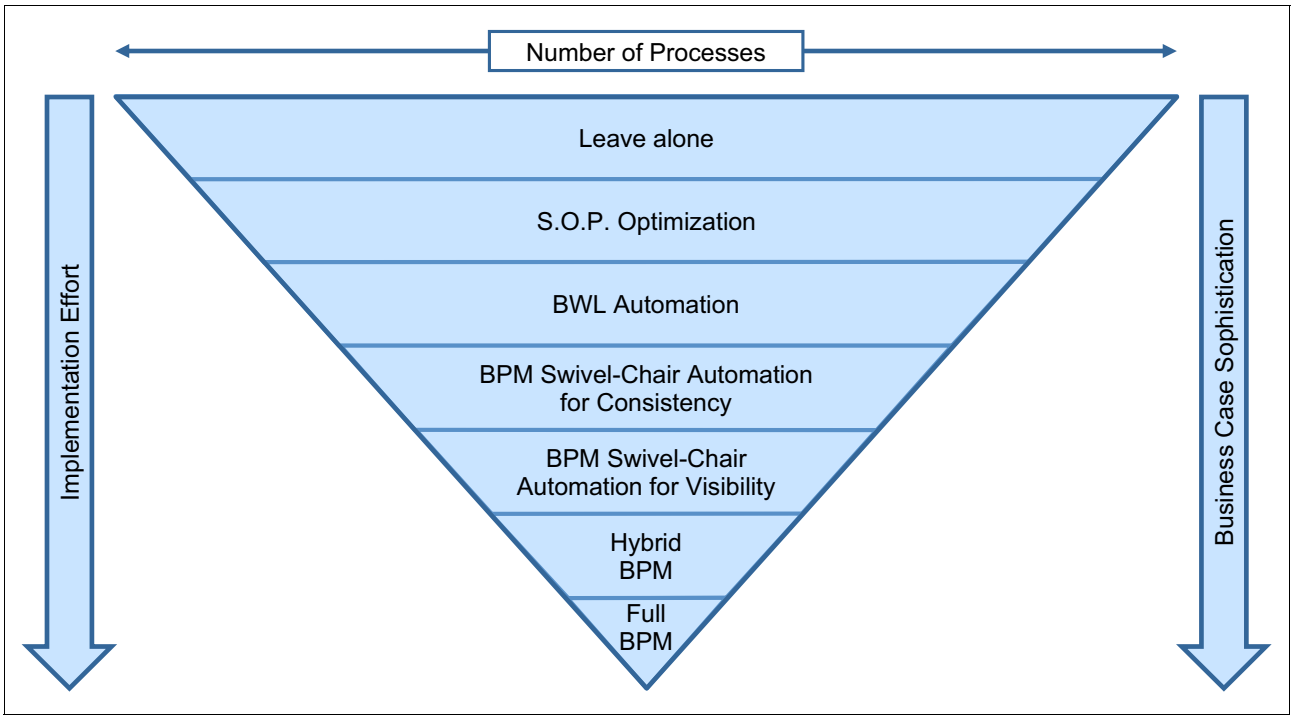

Figure 2-4 Inventory process

Analysis guidelines

Beware of *analysis paralysis* when you process inventory. Triage first, then prescribe a solution.

When doing analysis on a large number of business processes, trying to do an end-to-end analysis for each process, one by one, is not advisable. You should balance the time and effort with the benefit to be effective. In this section, we provide several guidelines for bulk analysis and how to do two levels of business analysis in Blueworks Live.

Level 1 analysis

Level 1 analysis should focus on looking at symptoms and leading indicators of opportunities for improvement. Level 1 analysis seeks to categorize each process in the inventory within the Process Improvement Tactics matrix. The categorization paves the way for Level 2 analysis.

The Process Improvement Tactics matrix represents the high-level generic recommendation that the process is likely to benefit from. The matrix also implies the type of Level 2 analysis that should be performed to obtain specific recommendations for each category.

As a part of doing Level 1 analysis, we suggest that the following attributes be recorded (as detail fields if using Blueworks Live) for each process model in the inventory:

- Process level attributes (Table 2-2)

Table 2-2 Process level attributes

Process attribute	Description
Volume	On average, the number of instances of this process that are started per year
Total Cost	On average, the activity cost of each instance of the business (hard cost, opportunity cost, rework cost, risk exposure costed average)
Total Benefit	On average, the dollar value of the benefit per instance to the business; for example, revenue, customer satisfaction, brand loyalty
% Rework in the process	Amount of time that some or all of the process needs to be redone to have an acceptable outcome.
Potential Automation Benefit	Whether this process benefits from automation. The analyst can quickly provide an instinctive answer to this question without extensive calculation or statistical analysis. Answers include *high*, *medium*, *low*, or *none*.
Confidence in Analysis	The confidence level of the analyst that the values provided for the fields reflect reality. Questions to ask are: Were you talking to the correct people? Are they biased? Did you spend sufficient time validating? Are you extrapolating too much? Answers include *high*, *medium*, *low*, or *none*.

- Activity level attributes (Table 2-3)

Table 2-3 Activity level attributes

Activity attribute	Description
Volume	On average, the number of instances of this process that are started per year
Total Cost	On average, the activity cost of each instance of the business (hard cost, opportunity cost, rework cost, risk exposure costed average)
Total Benefit	On average, the dollar value of the benefit per instance of this activity to the business; for example, revenue, customer satisfaction, brand loyalty
Integration Effort	To automate this activity, whether a significant effort is needed to build an integration to a system outside the BPM platform. Answers include *high*, *medium*, *low*, or *none*.
Value Added	Whether this activity is beneficial in any material way to the process itself or other dependent processes. Answers include *high*, *medium*, *low*, or *none*.
Potential Automation Benefit	Whether this activity can benefit from automation. The analyst can quickly provide an instinctive answer to this question without extensive number crunching or statistical analysis. Answers include *high*, *medium*, *low*, or *none*.

Level 1 analysis can be done by categorizing permutations of the values of four basic fields (Volume, Cost, Benefit, Automation Effort) from the above set of activities, against the Process Improvement Tactics matrix.

If you captured these fields in your Blueworks Live space, export your space to a tool such as Microsoft Excel to generate the type of analysis shown in the following section.

Typical Level 1 analysis mapping

Table 2-4 describes Level 1 analysis mapping.

Table 2-4 Level 1 analysis mapping

Process symptoms and attributes	Applicable process improvement tactic
Volume: Low **Cost**: Low **Benefit**: Low **Automation Effort**: High	Leave Alone
Volume: Low **Cost**: Medium **Benefit**: Medium **Automation Effort**: High	SOP Optimization
Volume: Medium **Cost**: Medium **Benefit**: Medium **Automation Effort**: High	Blueworks Live Automation
Volume: High **Cost**: Medium **Benefit**: High **Automation Effort**: Medium or High	BPM Swivel-Chair Automation for Consistency
Volume: ? (implies unknown) **Cost**: ? **Benefit**: ? **Automation Effort**: Medium or High	BPM Swivel-Chair Automation for Visibility
Volume: Medium or High **Cost**: Medium or High **Benefit**: Medium or High **Automation Effort**: Medium	Hybrid BPM Automation
Volume: High **Cost**: High **Benefit**: High **Automation Effort**: Medium or Low	Full BPM Automation

Level 2 analysis

A good way to think of the levels is as follows:

- Level 1 analysis is as an initial diagnostic and triage tool for processes.
- Level 2 analysis is the subsequent prescriptive solution that can alleviate the foremost detrimental symptoms in the process.

Level 2 Analysis should focus on building a business case and specific process improvement recommendations.

Table 2-5 describes the Level 2 analysis types for each diagnostic category.

Table 2-5 Level 2 analysis mapping

Applicable process improvement tactic	Level 2 analysis
Leave Alone	Rationale for why this process should be left alone. An “anti” business case.
SOP Optimization	► A set of recommendations for modifying standard operating procedures without introducing any automation ► A new to-be process for documentation in Blueworks Live
Blueworks Live Automation	► A new to-be process built as an automated process application in Blueworks Live ► The use of standard Blueworks Live reports for automated process applications
BPM Swivel-Chair Automation for Consistency	► A new to-be process built for documentation in Blueworks Live. ► A new to-be process built for swivel-chair implementation in BPM. ► A business case for the effort involved in implementing the above, outlining the quantifiable consistency benefits to the business unit funding the initiative. ► An analysis plan that eventually leads to a reclassification of this process within this matrix
BPM Swivel-Chair Automation for Visibility	► A new to-be process built for documentation in Blueworks Live ► A new to-be process built for swivel-chair implementation in BPM ► A business case for the effort involved in implementing swivel-chair, outlining the quantifiable visibility benefits to the business unit funding the initiative ► A limited pilot release plan for the swivel-chair implementation, to minimize the impact of dual work inherent in swivel chair ► An analysis plan, which eventually leads to a re-classification of this process within this matrix
Hybrid BPM Automation	► A new to-be process built for documentation in Blueworks Live ► A new to-be process built for Implementation in BPM, with some integration to back-end systems ► A business case for the effort involved in implementing the swivel-chair, outlining the quantifiable benefits to the business unit funding the initiative. ► A limited pilot release plan, if necessary, for the swivel-chair implementation, to minimize the impact of system stability and potential swivel-chair work in Release 1.
Full BPM Automation	► A new to-be process built for documentation in Blueworks Live ► A new to-be process built for Implementation in BPM, with integration to all necessary back-end systems ► A business case for the effort involved in implementing the swivel-chair, outlining the quantifiable benefits to the business unit funding the initiative ► A limited pilot release plan, if necessary, for the swivel-chair implementation, to minimize the impact of system stability in Release 1

Supporting activities

Use the following iterative approach when executing a coordinated effort to inventory, document, prioritize, and analyze hundreds of processes (or more) by using the analysis techniques that are outlined in the preceding section.

1. Identify and catalog all processes listed in Table 2-6. No modeling or diagramming is required at this level. This initial cataloging of business process can be managed centrally and collaboratively (with a tool such as Blueworks Live), but primarily is done by process owners from their respective business units.

Table 2-6 Inventory processes for analysis

Process	Examples
ID	1, 50, FZ64A
Current format	Visio, PDF, Word, PowerPoint
Process name	Negotiate contract
Status	Current, Out of Date, Tribal Knowledge
Process owner	Owner's name
Original author	Author's name

2. Complete *milestone level modeling* in Blueworks Live for all processes and add another column named *Process improvement tactic* to Table 2-6, as listed in Table 2-7. This step too can be performed by process owners from their respective business units but governed by the BPM CoE for further discovery, analysis, and data collection.

Table 2-7 Inventory processes for analysis

Process	Examples
ID	1, 50, FZ64A
Current format	Visio, PDF, Word, PowerPoint
Process name	Negotiate contract
Status	Current, Out of Date, Tribal Knowledge
Process owner	Owner's name
Original author	Author's name
Process improvement tactic	SOP, optimization, Blueworks Live Automation

3. Standardize all processes in Improvement Tactic categories that are related to BPM Automation or Swivel Chair. The process of standardization should involve modeling these processes down to the task level (but not to the action level).
4. Perform Level 2 analysis on all processes that are identified in step 3. (Steps 4 and 5 can be done in parallel.)
5. Standardize all processes in Improvement Tactic categories *other* than BPM Automation or Swivel Chair. (Steps 4 and 5 can be done in parallel.)

2.5 Organization in depth

The strategy element of a BPM CoE requires specific skills, envisioned in roles that are then organized in a decision, making and executing structure against their areas of responsibility.

2.5.1 Roles

A useful way to think of the roles that are involved in creating the strategy element of a BPM CoE is as follows:

1. Start with a core group.
2. Later, expand into an extended set of roles, likely specific to your organization, and that support this core group.

Core roles

This section defines the core roles that support the strategy element of a BPM CoE.

Executive Sponsor

This role is the highest level executive who is sponsoring the entire BPM initiative (most likely, in the form of direct funding of the business case) in the organization that requires the BPM CoE.

- Provides senior sponsorship
- Leads direction-setting for the BPM CoE
- Establishes and evolves a funding model
- Governs the escalation processes

Business Architect

This role is typically a senior business and process engineering analyst who understand the entire value chain and was directly involved in creating the business case for the enterprise BPM initiative.

- Establishes and documents the enterprise value chain
- Initiates and governs the enterprise process inventory and analysis exercise
- Develops and prioritizes enterprise process road map
- Establishes and governs analysis standards
- Establishes and governs measurement standards

BPM Technical Architect

This role is the highest level of technical leadership involved in selecting and owning the BPM infrastructure (BPMS) in the organization. This person makes key strategic decisions involving, using, acquiring, and phasing out technology in the BPM software stack.

- Plans and evolves system capacity and architecture requirements
- Establishes an enterprise architecture stack involving the BPM system
- Creates, standardizes, and governs “best fit for purpose” guidelines for the BPM system
- Promotes and governs process and rule component reuse
- Articulates system performance and capacity management expectations to the shared infrastructure group

BPM Strategy Lead

This role is typically someone in a full-time project or program management role for the entire Center of Strategy. This lead acts to organize, articulate, and drive the agenda set by the other core members. This role is key because the other members likely do not have a full-time commitment to the BPM CoE strategic mission.

- Manages the strategic elements of the BPM CoE
- Prioritizes overall project pipeline
- Plans and prioritizes overall talent development requirements
- Establishes and governs delivery method standards
- Tracks execution across overall project portfolio

2.5.2 Required skills and experience

Table 2-8 describes skill and experience levels for each role.

Table 2-8 Skills and experience levels

Role	Required skills and experience
 **Executive Sponsor**	► Is respected as a senior leader in the organization ► Understands the organization's strategic direction ► Has direct influence in the organization's current governance committees and processes ► Has experience championing broad organizational change
 **Business Architect**	► Has experience with process design, requirements-gathering ► Has process decomposition and facilitation skills ► Uses critical analysis and reporting skills ► Has exposure to Six Sigma and lean methods, financial analysis tools, and change management
 **BPM Technical Architect**	► Has experience with process design and change management ► Is respected as a senior technical leader in the organization ► Has experience with iterative and agile methodology or other similar methods that are based on rapid application development (RAD) ► Is aware of and has direct influence on the overall enterprise IT strategy ► Has experience championing enterprise technical change
 **BPM Strategy Lead**	► Has experience with software development leadership ► Has experience with enterprise wide change management ► Has experience with iterative and agile methodology or other similar RAD-based methods ► Has experience with Microsoft Project and process modeling tools ► Is typically a full-time commitment

2.5.3 Organizational structure

Figure 2-5 and Figure 2-6 illustrate a preferred organizational structure for the strategy element of a BPM CoE.

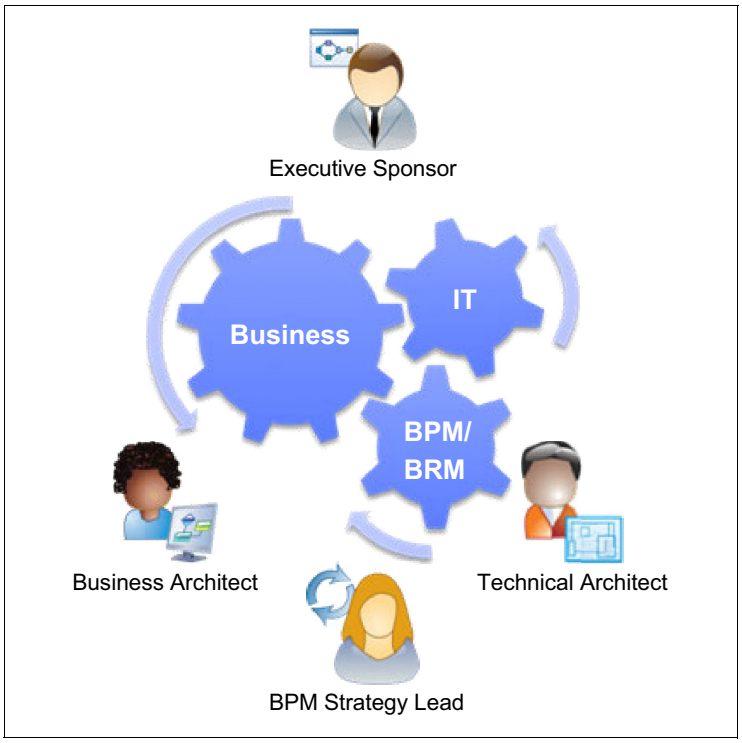

Figure 2-5 Center of Strategy organizational structure

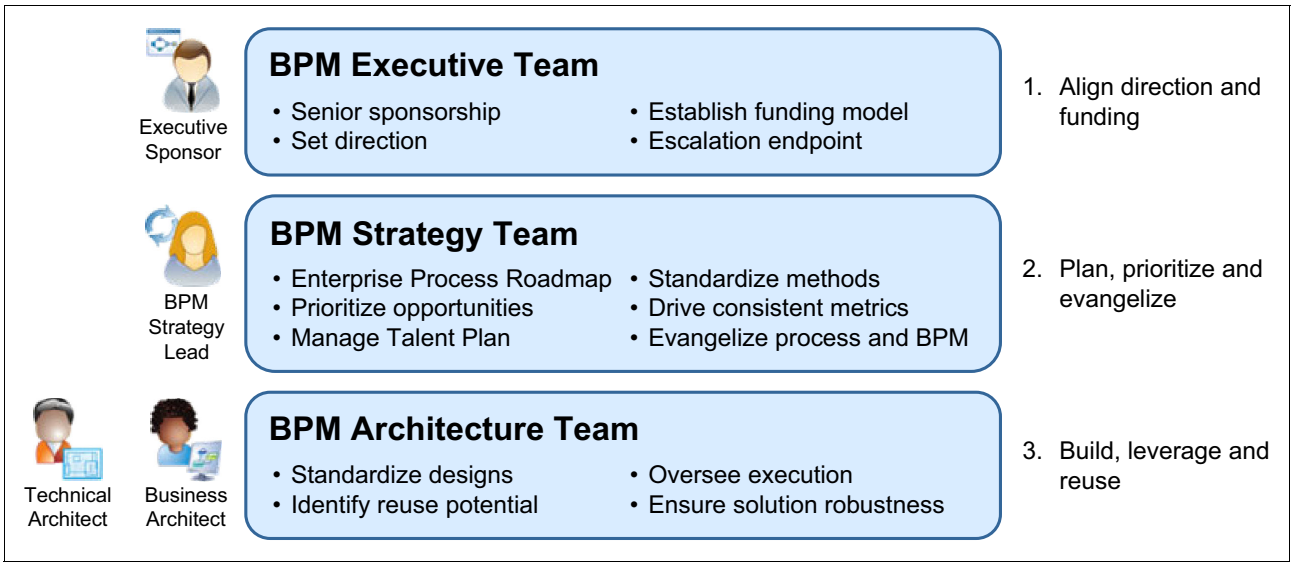

Figure 2-6 BPM CoE organizational structure for the strategy element

We suggest that at least one distinct person be assigned accountability for each role, and that individuals must have prior relevant delivery capability even if they are not assigned delivery responsibility.

3

Delivery

This chapter describes the key focus area of delivery in a BPM Center of Excellence. This chapter contains the following topics:

3.1 Purpose of delivery in a BPM CoE

BPM software today is more business friendly than ever, involving the business audience in a direct manner during the implementation process. However, the software still requires a team of implementation experts to create a fully functional BPM solution.

After the Center of Strategy determines the vision, the goals, and a road map for the enterprise BPM initiative, a delivery organization needs to be dedicated to realizing that vision by way of implementing a steady stream of funded BPM projects from the inventory. This is the mandate of the BPM Center of Delivery.

3.2 Areas of responsibility for delivery in a BPM CoE

Broadly, the domains of concern that fall under the delivery component of a BPM CoE can be organized as follows:

- Scalable staffing and execution of individual BPM projects
- BPM delivery and implementation focused methodology, best practices, guidelines, and reviews
- Support for operational BPM solutions
- BPM talent recruitment, enablement, and retention

In addition to instituting definitions of each of these domains, the BPM CoE must engage in activities that advance and implement them.

For an in-depth view of these domains, see 3.5, “Areas of responsibility in depth” on page 29.

3.3 Success metrics for Delivery in a BPM CoE

As is true for all organizations, there must be a way to evaluate the effectiveness, success, and value by using concrete metrics. In the case of the delivery element of a BPM CoE, typical success metrics include the following items:

- User acceptance and adoption:
  - Number of processes deployed
  - Number of releases deployed
  - Number of opportunities in the project pipeline
- Solution delivery:
  - On-time
  - On-budget
  - Defect rate
  - Defect resolution time
- Reuse:
  - Process reuse rate
  - Service reuse rate

3.4 Organization of delivery in a BPM CoE

After these areas are specifically identified and given concrete articulation, it becomes important to give shape to the actual organization that will advance the areas of responsibility. This organization can be envisioned in the following typical areas:

- Roles
- Skills
- Organizational Structure

For an in-depth view of these areas, see 3.6, “Organization in depth” on page 37.

3.5 Areas of responsibility in depth

This section describes the following topics:

- Scalable staffing and execution of individual BPM projects
- BPM delivery methodology
- Support of BPM Solutions
- BPM talent management

3.5.1 Scalable staffing and execution of individual BPM projects

One of the primary areas of responsibility for the delivery element of a BPM CoE is to provide the staffing, expertise, and experience required to execute on the pipeline of projects built by the strategy element of the BPM CoE. This area requires a staffing model and a resource pool, aligned with roles in the BPM methodology.

Staffing model

The staffing model is the engagement mechanism by which individual projects can make requests for resources to implement their process. The purpose of the staffing model should go beyond simply supplying tactical skills needed to add discrete functionality to individual solutions, to assuming responsibility for the overall success of the BPM solution.

Any staffing model for BPM projects should take into account a need for scalability to keep pace with BPM adoption across the enterprise. This scalability can be enabled by understanding the specialization of various roles involved in successfully implementing a BPM project, and the recommended level of involvement by these roles in each project. These resources are likely to start being used for multiple projects as resource demands grow for the BPM CoE. A high degree of usability across projects is the primary value of a centralized BPM delivery organization.

Resource pool

The types of roles that are resourced through the staffing model should be aligned with the BPM Delivery Methodology described in *Scaling BPM Adoption: From Project to Program with IBM Business Process Manager,* SG24-7973 (see the following link), and include the roles described in the following sections.

http://www.redbooks.ibm.com/abstracts/sg247973.html

BPM Program Manager

A methodology coach who provides oversight in the area of driving iterations, playbacks, estimation, planning engagement methodology, and agile development in general. Initially, this role can also provide traditional Project Management skills (such as contract management, time tracking, expenses, and other administrative tasks). However, *the real value of this role is in driving and owning the methodology and lifecycle of each project*.

Longer term, each organization has to make a decision about whether to combine the administrative and methodology responsibility in one role or to separate them out. From a methodology coach perspective, this role is recommended at a minimum of 50% involvement for each individual BPM project.

BPM Analyst

A BPM Analyst focuses on discovering and modeling value-driven process requirements within the context of an individual project and with the intent of collaborating with the solution implementation team. This role is heavily involved in initial process definition and leading process owners and subject matter experts (SMEs) to consensus. The BPM Analyst coaches the business participants to deliver Playback Zero and looks for ways to accelerate business value through process optimization. For more information, see 5.3.1 “Playback planning” in *Scaling BPM Adoption: From Project to Program with IBM Business Process Manager*, SG24-7973:

http://www.redbooks.ibm.com/abstracts/sg247973.html

By following the “Playback 0” section in that book, involvement can be reduced to being present in, but not driving, each subsequent playback, basically serving as the voice of the customer in those gatherings. The value of this role is in driving, discovering, and documenting process requirements to prepare for implementation by engaging directly with the business and staying lightly engaged to ensure adherence to the BPM solution value proposition.

BPM Developer

A BPM implementation expert who is trained and experienced in using the BPM platform to develop solutions. The key value of this role is to drive toward a release by using the BPM methodology and focus on ready-to-use product rather than custom development done outside the tool (or unsupported development done inside the tool). This role inherits the requirements for the solution from the BPM Analyst at the end of Playback Zero, and is then responsible for shepherding the team through the remainder of the playbacks.

A senior member of this role is typically in a *team lead* or *solution architect* role for one or more projects, and a junior or mid-level member typically acts in a capacity of individual contributor on single projects.

The BPM Developer role should have a 100% involvement for each individual BPM project, although multiple people will likely be in this role for each project.

BPM Integration Developer

The BPM Integration Developer is a more technically focused version of the BPM Developer role. The BPM Developer focuses on ready usage; the Integration Developer focuses on building additional functionality outside the core product that is needed to complete the end-to-end solution. In some cases, this focus might mean developing a custom integration connector that is not supplied as ready-for-use, troubleshooting any issues with using ready for use connectors, developing custom interfaces (beyond the ready-for-use business user interfaces in IBM BPM) when there is a valid business, and so forth. The key value of this role is handling the IT-driven technical requirements for the project, allowing the BPM Developer to focus on addressing the business scenario with ready-for-use functionality.

The involvement of this role is highly dependent on the amount of custom development required for a project. For a project with no customizations or no new external integrations, the involvement can be as low as 30% (to ensure correct usage of existing integrations). On the other hand, for a project with custom user interfaces and new integrations to a number of external systems, it can be as high as 100% with multiple Integration Developers. As an aside, the latter projects are to be strongly scrutinized as appropriate fits for BPM.

These roles can exist across a spectrum of experience, expertise, and involvement, implying varying levels of ownership and responsibility on the project. This information is called out specifically to reduce unnecessary middle-management in projects, thus a Team Lead, Solution Architect, or Lead Analyst must still align with and perform (with some portion of their time) one of the roles described previously.

Other roles that are resourced from outside the BPM CoE delivery capability

As a matter of pragmatism, a successful BPM project needs more roles than the roles described previously. However, these roles do not need to be resourced by the delivery capability of BPM CoE and may be provided by other traditional parts of your IT organization.

- From the Shared Infrastructure group (see “Organization in depth” on page 54).
  - BPM System Administrator
- From your traditional IT organization
  - Database Administrator
  - Infrastructure Administrator
  - Overall Enterprise Architect
  - Architects and developers for relevant external systems
- From the relevant business community
  - Business users
  - SMEs
  - Process owners

Figure 3-1 shows the BPM solution delivery team roles.

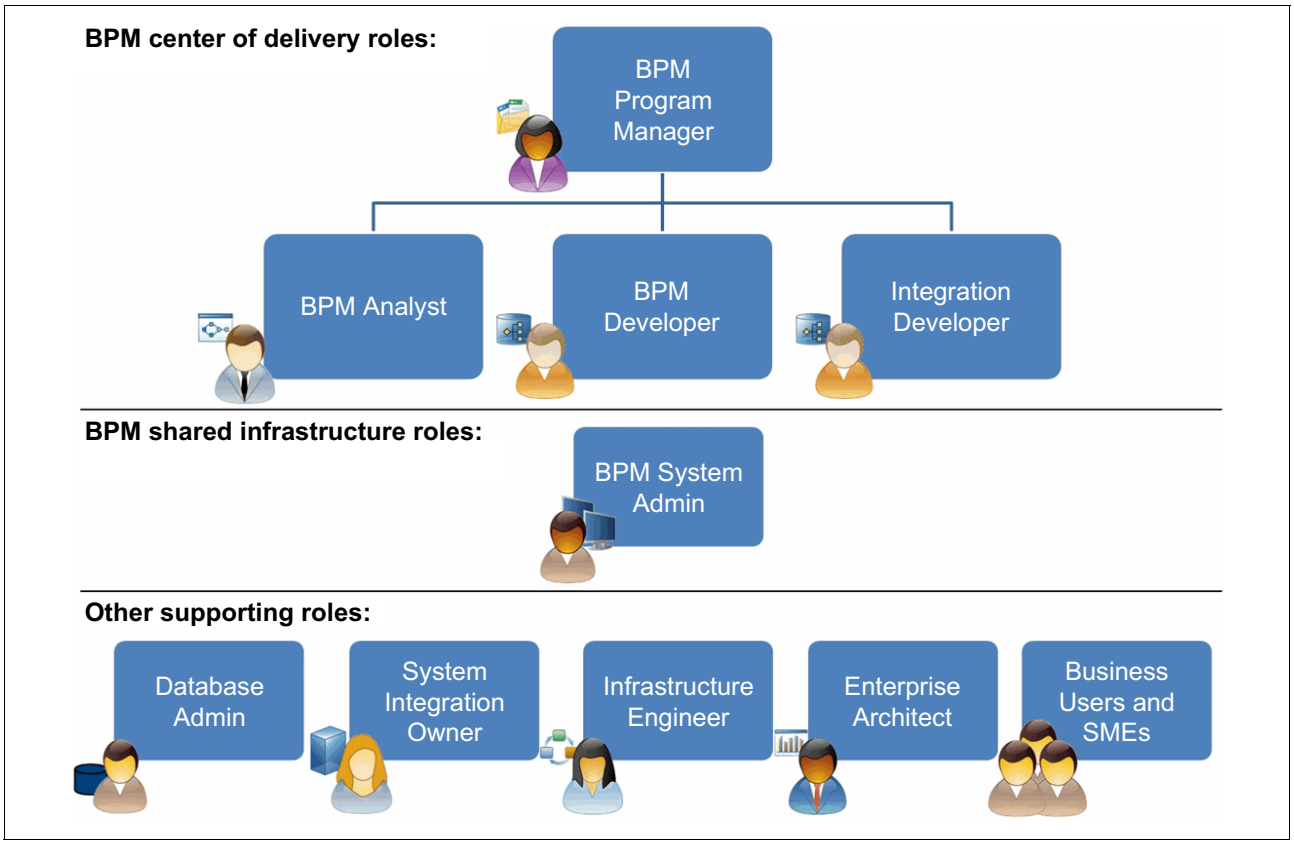

Figure 3-1 BPM solution delivery team roles

3.5.2 BPM delivery methodology

In addition to the staffing model and role resourcing responsibility, another prime area of responsibility for the delivery element of a BPM CoE is to actively monitor, manage, and drive delivery quality throughout the organization. This area means going beyond simply putting trained people on projects and relying on existing traditional IT methods for ensuring quality solutions. The BPM CoE must go further and establish its own BPM quality governance measures, which should be embodied in a tailored methodology that includes the concepts described in this section.

A BPM project lifecycle model

The BPM project lifecycle model should be an end-to-end view of implementing a typical BPM solution, from funding to discovery, and to deployment and then to support. The recommended methodology for BPM projects, which is described in *Scaling BPM Adoption: From Project to Program with IBM Business Process Manager*, SG24-7973, provides a helpful starting point that you can tailor to fit your organization:

http://www.redbooks.ibm.com/abstracts/sg247973.html

Tactical best practices and guidelines

A methodology often sets the high-level milestones and vision for the lifecycle of a project. However, additional guidelines are often necessary to inform the daily work.

Best practices

A best practice is a set of fit-for-purpose recommendations that can apply in a range of situations, without having a specific home in the methodology timeline. Examples are as follows:

- Have the business sponsor for the process lead each playback.
- Plan each release in 90-day increments.
- Use a “camel case” naming convention[1] for variables inside the implementation tool.

These best practices can be grouped in a number of ways, including a planning focus, an analysis and business-engagement focus, and a technical focus. IBM BPM Community's BPM Implementation Best Practices are a helpful starting point to this body of knowledge:

http://bpmwiki.blueworkslive.com/display/commwiki/Best+Practices+Recommendations

Guidelines

In some cases, a guideline is needed instead of a rule. Guidelines can act as “sign posts” or early warning systems, rather than reflexive actions without contextual critical thinking. For example, the following guideline often points to a misunderstanding about how to model processes:

```
Avoid a sequence of activities adjacent to each other in the same swimlane
```

However, in some cases, this action might be the correct one if the author is documenting the as-is process with a view toward future improvements through better work distribution. Guidelines are sometimes combined with best practices; the pertinent difference is suggestive versus prescriptive.

Design patterns

In some cases, curating and advocating reusable patterns of implementation and design is important because they can dramatically increase productivity in both design and implementation. Although some design patterns are domain-specific and must be discovered, evolved, and recorded as your BPM CoE matures, others are domain-independent and can be used immediately. IBM BPM Community's suggested BPM Design Patterns are a helpful starting point to this library:

http://bpmwiki.blueworkslive.com/display/commwiki/Design+Patterns

Toolkits

It is often necessary to go beyond theoretical design patterns and actually build executable reusable assets that can be used for commonly occurring work across multiple processes. For instance, you might want to develop a Toolkit for Accounting System Integrations, or SAP integrations or Customer Lookup. Most toolkits tend to be thematically focused on various ways of talking to a single external system at a time, or encapsulating a commonly occurring design pattern or widget. Similar to design patterns, although some toolkits are specific to a domain and certainly an organization, several can be independent of those factors and used as utilities.

IBM BPM Community's BPM Toolkits are a good starting point to reference in your BPM CoE library of toolkits:

http://bpmwiki.blueworkslive.com/display/samples/Toolkits

[1] Camel case is a word or string of letters that has no space and has an upper case letter in a position other than the first letter, for example dataType.

Project reviews

The BPM CoE responsibilities start with the curation and organization of all the assets described previously, but they should not end there. In fact, the entire purpose of having a methodology (with lifecycle, best practices, guidelines, and toolkits) is to proactively assert its appropriate usage within each individual project executed by the BPM CoE. This assertion should be done by applying regular and consistent project reviews, or health checks, which aim to measure the likelihood of success for each project at distinct stages in the lifecycle.

To produce consistent results from project reviews, develop a “BPM Delivery Quality Assessment” framework. This framework should have standard questionnaires and templates that provide delivery health indicators along with remediation measures for improvement. In essence, it is a check to determine how closely the project team adheres to the known best practices, guidelines, toolkits, and patterns discussed previously.

IBM Software Services for BPM offers a formal Health Check engagement for your BPM project that can serve as a good starting point for your own BPM Delivery Quality Assessment framework. Contact your IBM sales representative to learn more about these services engagement offering.

3.5.3 Support of BPM Solutions

After the BPM CoE successfully executes and deploys a BPM Solution, it should also provide continued support that is specific for business process owners and participants. Although technical support and administration activities can be done by traditional IT groups and the shared infrastructure group, business functionality and solution support should be bolstered by a BPM-specific support team. This BPM solution support team should apply product expertise to support the solution at a Level 3 tier, such as in the following examples:

- How to interpret product specific behavior, read logs, use BPM specific tools to troubleshoot problems
- Be aware of the business purpose of various solutions, and so on

A beneficial approach is to rotate members of the project implementation team through 3 - 6 months of support engagement to help the team members develop well-rounded perspectives in implementing better solutions.

The success of the BPM solution support organization should be measured by percent of user adoption, amount of business rework as a result of errors, and interruptions of business continuity. Traditional measurements of support organizations, such as number of bugs resolved or time spent to close issues, does not measure business value in any meaningful way and can get lost in operational efficiency, divorced from true business value.

3.5.4 BPM talent management

The BPM CoE is responsible for the human resource talent in a BPM program. The BPM CoE must recruit, enable, and retain the people and skills that are needed to support the transformational and growing BPM program initiatives, guided and set by the strategic component of the BPM CoE.

Recruiting

In recruiting BPM delivery talent, each individual role must be specifically targeted. An important note is that the first three roles are generally not successful transitions from traditional IT. Successful BPM talent comes from people who are first and foremost

passionate about discovering, understanding *business* problems (rather than administrative, operational, documentation, or technical problems).

Table 3-1 describes the roles and responsibilities for recruiting.

Table 3-1 Recruiting roles and responsibilities

Role	Responsibilities	Skills (for mid-level)
BPM Program Manager	► Is an expert in Iterative Delivery Methodology ► Drives team to produce measurable business value ► Identifies and mitigates risks ► Acts as conduit for escalations and issue resolution ► Provides internal and external status and dashboards ► Manages scope, budget, and resources	► 3 - 5+ years of hands-on experience with iterative (or other, similar) methodology ► 3 - 5+ years of experience with leadership in software development projects ► Experienced user in process discovery tools (for example, Blueworks Live) ► User of Microsoft Office, Microsoft Project, Process Design tools ► Prior BPM project experience
BPM Analyst	► Leads process improvement efforts ► Is an expert in process decomposition, process/data analysis, scoping, optimization ► Identifies business case, key opportunities, prioritized roadmap, and ROI ► Identifies and enforces delivery of KPIs, SLAs, and scoreboards ► Identifies and captures as-is and to-be process information in discovery tools	► 3 - 5+ years of experience with process design, requirements gathering ► Process decomposition facilitation skills ► Critical analysis and reporting skills ► Exposure to Six Sigma or Lean methods, financial analysis tools and change management ► Power user of BPM Discovery (for example, BlueworksLive) tools and be familiar with process diagrams in BPM tools
BPM Developer	► Implements process flows, services, business logic, and user interfaces within the BPM product ► Is an expert in BPM product features in the context of business solutions ► Implements KPIs, SLAs, and scoreboards within the BPM product ► Drives business playback sessions	► 3 - 5+ years of experience with technical solution development on commercial or enterprise projects ► Hands-on implementation experience with JavaScript, basic SQL, XML, HTML ► Experienced at workflow patterns and basic logic flows, user interface development ► BPM product expert
BPM Integration Developer	► Is responsible for systems architecture regarding the solution ► Designs and implements integrations, custom data storage, and complex data manipulations. ► Guides infrastructure design and implementation pertinent to the solution	► 5 - 7+ years experience with software development projects. ► Experience in architecture planning and development projects ► Hands-on implementation experience with J2EE, Java, JSP, SQL, SOAP, XML, XSLT, patterns, advanced logic flows, EAI, .NET ► Integration expert

Enablement

When new members are hired to the delivery team, they must go through a BPM enablement process (beyond the basic onboarding items for all new employees).

Channels

In most cases, enablement takes the form of four channels:

- Standard or self-paced product training

  The purpose of this channel is to serve as a basic primer, meant to introduce the relevant product and methodology to the individuals in these roles. In the case of IBM BPM, a wide range of educational courses are available:

  `http://www.ibm.com/software/websphere/education/curriculum/bpm/`

- Reference and documentation material

  Use this channel only after the basic training is completed. The channel assumes that individuals already know the basic ecosystem of the tools and methodology they will be working with, and now have advanced, specific questions they want to explore on their own. If using IBM BPM, see the reference and documentation material:

  `http://www.ibm.com/developerworks/websphere/zones/bpm/`

- Internal workshops and seminars

  After standard knowledge about the tools and their related methodology is absorbed by the participants, an essential step is to update that information with how it is to be applied in *your* organization. What is standard in the courses and documentation may not be standard you chose to follow in your organization. All such contextual knowledge about the application of BPM in your organization (from conventions, best practices, guidelines to the CoE itself) should be provided to the individuals in these roles in the form of a regular internal workshop meant to be consumed by all new additions to the team.

  These workshops can be delivered ad-hoc, or recorded and made available as self-paced material. in which interpretation and contextual critical thinking are essential.

- Short, targeted, boot camps

  Training, documentation, workshops, and seminars are for the most part a passive means of absorbing information. After this first set of information is delivered, it can be put into practice by actively doing work in an environment that has a specific time period and controlled risk.

  This type of active learning can be done through BPM boot camps, which provide packaged projects and exercises for the participants, and with a dedicated boot camp “track lead” to help the participants apply and use their existing knowledge to implement their boot camp projects.

  The primary purpose of boot camps is to provide a learning experience for the participants, for example, learning the tool and in applying the methodology. A secondary purpose at later stages of maturity for the BPM CoE might also be to jump-start actual BPM projects that will be deployed to production. Selecting such projects and crafting their first phase to fit within the boot-camp curriculum and timeline delivers real business value, although internal skills enablement is ongoing.

Limited mentoring period

Following the boot-camp experience, your new team members are now ready to be staffed on BPM projects under the guidance of the BPM CoE. An important note, however, is that each graduate from this program will need mentoring by a more experienced individual. The mentoring period can be adjusted based on the individual, the nature of the first project the person is assigned to, and the role this person is fulfilling on that project. However it is

facilitated, take mentoring seriously; mentoring should be conducted in a formal or structured fashion to accelerate achievement.

The mentoring period provides a real-world crucible in which to evaluate and examine actions that might make perfect sense in the controlled education environments, but are in fact to be avoided in certain real-world scenarios. The feedback that is received during this time can help solidify all the knowledge that is gained so far and enable your team to gain that last bit of organizational knowledge, common sense, and critical thinking that is necessary to succeed.

Retention

An enormous amount of effort goes into recruiting and enabling the members of the BPM CoE. The CoE leadership team should be directly responsible for putting in place measures to retain these team members as a part of the BPM delivery practice and to align their internal career growth with growth in their BPM delivery roles. One of the most common problems in any CoE is the continuous leaving of qualified individuals that comes with having learned new and valuable skills and a perceived lack of rewarding opportunities in which to apply those skills.

The BPM CoE represents a substantial investment for the organization and the executive sponsor's office. It is incumbent upon the element of the CoE responsible for leadership in delivery to protect and provide a return on that investment.

3.6 Organization in depth

The organization of the BPM CoE requires specific skills, envisioned in roles that are then organized in a decision-making and executing structure against their areas of responsibility.

3.6.1 Roles

Similar to the strategy element in the BPM CoE, a useful way to think of the roles that are involved in creating a delivery practice is as follows:

1. Start with a core group.
2. Later, expand into a scalable set of roles (some are likely to be specific to your organization) that support this core group.

Core roles

This section defines the core roles for the delivery element of the BPM CoE.

Executive Sponsor

This role is the highest level executive who has responsibility for (most likely, in the form of direct ownership) the BPM delivery initiative.

- Provides senior leadership.
- Sets the direction for the delivery of BPM projects.
- Establishes and evolves the funding model along with this Executive Sponsor's counterpart for BPM strategy.
- Governs escalation processes along with this Executive Sponsor's counterpart for BPM strategy.
- Socializes and advocates for the BPM CoE as the *de facto* delivery team for all BPM projects across the enterprise.

Center of Delivery Lead

This role is typically a senior and proactive Project Manager who has experience in running wide ranging initiatives with several simultaneous projects. This person is familiar with the BPM methodology used in implementing individual projects. Typically, this role is a full-time commitment.

- Establishes, documents, and governs the BPM project pipeline.
- Establishes and governs the staffing model for addressing the pipeline.
- Runs year-long recruiting, enablement, and retention initiatives to grow the delivery team at a rate that can sustain the growing demand for BPM projects and initiatives in the enterprise.
- Establishes and governs measurement standards for BPM delivery
- Tracks execution across overall project portfolio.

BPM Program Management Competency Lead

This role is typically a senior Project Manager who has experience with large projects, establishing a methodology and providing governance along with quality control across multiple projects. Typically, this role is a full-time commitment.

- Estimates, plans, and manages the overall BPM project.
- Creates, manages, and drives the BPM Project Methodology within the BPM CoE.
- Enables the delivery team with agile methodology and a business-value focus.
- Leads the BPM Program sub-team and is a member of this sub-team.

BPM Analysis Competency Lead

This role is typically a senior BPM Analyst who has experience with large projects, establishing a comprehensive analysis methodology (similar, although not the same as, Six Sigma and Lean) and providing analysis mentorship for junior and mid-level BPM Analysts across multiple projects. Typically, this role is a full-time commitment.

- Is responsible for discovery and documentation of BPM requirements
- Creates, manages, and drives the BPM analysis methodology within the BPM CoE
- Enables the business with process analysis and management capabilities.
- Leads BPM Analysis sub-team and is a member of this sub-team.

BPM Solution Development Competency Lead

This role is typically a senior BPM Developer who has experience with leading teams and doing hands-on solution implementation work (writing solution code) for large projects. This person also has experience in establishing a comprehensive solution development methodology and provides implementation mentorship for junior and mid-level BPM Developers across multiple projects. Typically, this role is a full-time commitment.

- Is responsible for implementation of BPM requirements within BPM tool for individual projects.
- Creates, manages, and drives the BPM Solution Development methodology, guidelines, and best practices within the BPM CoE.
- Enables the business with process analysis and management capabilities.
- Leads the BPM Solution Development sub-team and is a member of this sub-team.

BPM Technical Development Competency Lead

This role is typically a senior Technical Developer who has experience with leading and implementing large integration and back-end projects. This person also has experience in establishing a comprehensive integration development guidelines and providing implementation mentorship for junior and mid-level Integration Developers across multiple projects. Typically, this role is a full-time commitment.

- Is responsible for implementation of technical requirements for BPM solution (outside the BPM tool) for individual projects.
- Creates, manages, and drives the BPM Integration Development methodology, guidelines and best practices within the BPM CoE.
- Enables the delivery team with required toolkits and integrations.
- Leads the BPM Technical Development sub-team and is a member of this sub-team.

Scalable roles

This section defines the scalable roles for delivery element of a BPM CoE.

BPM Program Manager

This role is typically a Project Manager who has experience with medium to large projects, driving a methodology, and providing project-level governance along with quality control across multiple projects. Typically, this role is a full-time commitment.

- Estimates, plans, and handles overall management of the BPM project.
- Drives the BPM Project Methodology within the project.
- Enables the delivery team with agile methodology and a business-value focus.

BPM Analyst

This role is typically a Business Analyst who has experience with process decomposition in medium to large projects, driving a comprehensive analysis methodology (similar to, although not the same as, Six Sigma and Lean) for individual projects. Typically, this role is a full-time commitment.

- Is responsible for discovery and documentation of BPM requirements within the project.
- Drives the BPM Analysis methodology within the project.
- Enables the business with process analysis and management capabilities.

BPM Solution Developer

This role is typically an available Solution Developer who has experience with using packaged solution development software, doing hands-on solution implementation work (writing solution code such as JavaScript, XML, SQL, and so on) for medium to large projects. This person also has experience in driving a comprehensive solution development methodology for a project. Typically, this role is a full-time commitment.

- Is responsible for implementation of BPM requirements within the BPM tool for the project.
- Drives the BPM Solution Development methodology, guidelines, and best practices within the project.
- Enables the business with process analysis and management capabilities.

BPM Technical Developer

This role is typically a Technical Developer who has experience with implementing medium to large integration and back-end projects, doing hands-on functional implementation work (writing functional code such as Java and .Net), and has solid experience with the back-end

stack of the IT organization. This person also has experience in driving comprehensive integration development guidelines for multiple projects. Typically, this role is a full-time commitment.

- Is responsible for implementation of technical requirements for BPM solution (outside the BPM tool) for a project.
- Drives the BPM Integration Development methodology, guidelines, and best practices within a project.
- Enables the delivery team with required toolkits and integrations.

3.6.2 Required skills and experience

This section describes the skill and experience levels for each of the core and scalable roles.

Core roles

Table 3-2 describes skill, experience, and commitment levels for the core roles.

Table 3-2 Core skills and experience levels

Role	Required skills, experience, and commitment
 **Executive Sponsor**	► Is respected as a senior leader in the organization ► Understands and embraces the delivery organization's strategic mission ► Has direct influence in the IT organization's current governance committees and processes ► Experience leading large specialized delivery teams ► Role is typically a part-time commitment
 **Center of Delivery Lead**	► Experience with project management and staffing ► Experience with project pipeline management and growth ► Experience with creating and applying various delivery models depending on the pipeline need ► Exposure to Six Sigma and Lean methods, financial analysis tools and change management ► Role is typically a full-time commitment
 **BPM Program Management Competency Lead**	► Experience with agile and iterative project management and methodology development ► Experience with Six Sigma or Lean methods, financial analysis tools and change management ► Experience with software development leadership ► Experience in mentoring and teaching other agile program managers ► Role is typically a full-time commitment
 **BPM Analysis Competency Lead**	► Experience with business analysis methodology development and leadership ► Experience with enterprise change management ► Familiarity with iterative and agile methodology or other similar RAD-based methods ► Experience with process design, requirements discovery and capture (and relevant tools) ► Process decomposition and facilitation skills ► Critical analysis and reporting skills ► Role is typically a full-time commitment

Role	Required skills, experience, and commitment
BPM Solution Development Competency Lead	► Experience with solution development leadership ► Experience with developing an iterative and agile methodology or other similar RAD-based methods ► Experience with process design, requirements refinement ► Process decomposition and facilitation skills. ► Hands-on programming skills: JavaScript, XML, SQL, HTML ► Role is typically a full-time commitment
BPM Technical Development Competency Lead	► Experience with technical and functional development leadership ► Experience with developing an iterative and agile methodology or other similar RAD-based methods ► Hands-on programming skills: Java, .NET ► Experience with organizations back-end software stack and SOA ► Role is typically a full-time commitment

Scalable extended roles

Table 3-3 describes skill, experience, and commitment levels for the scalable extended roles

Table 3-3 Scalable extended skills and experience levels

Role	Required skills, experience, and commitment
 **BPM Program Manager**	► Experience with applying agile and iterative project management and methodology ► Experience with Six Sigma or Lean methods, financial analysis tools and change management ► Experience with software development leadership on individual projects ► Role is typically a full-time commitment
 **BPM Analyst**	► Experience with applying and driving a consistent business analysis methodology ► Familiarity with iterative and agile methodology or other similar RAD-based methods ► Experience with process design, requirements discovery and capture (and relevant tools) ► Process decomposition and facilitation skills ► Critical analysis and reporting skills ► Role is typically a full-time commitment
 **BPM Solution Developer**	► Experience with solution development ► Experience with applying a iterative and agile methodology or other similar RAD-based methods ► Experience with process design, requirements refinement. ► Process decomposition and facilitation skills. ► Hands-on programming skills: JavaScript, XML, SQL, HTML ► Role is typically a full-time commitment
 **BPM Technical Developer**	► Experience with technical and functional development ► Experience with applying an iterative and agile methodology or other similar RAD-based methods ► Hands-on programming skills: Java, .NET ► Experience with organizations back end software stack and SOA ► Role is typically a full-time commitment

3.6.3 Organizational structure

This section describes the suggested organizational structures for the Center of Delivery.

Core

Figure 3-2 shows the organizational structure for the core roles.

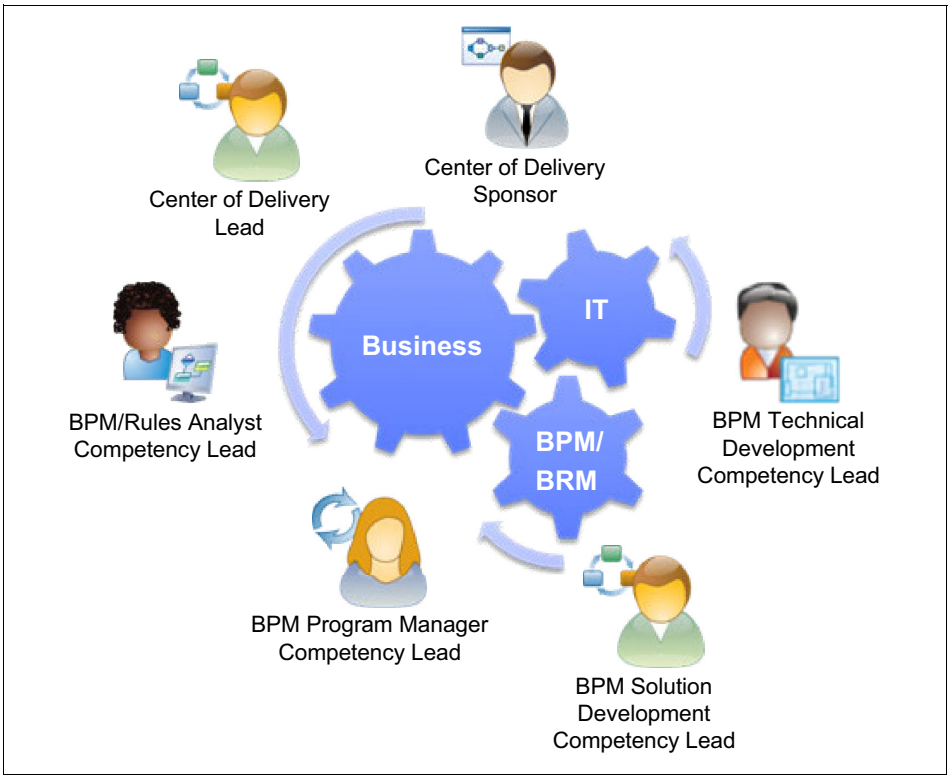

Figure 3-2 Core roles organizational structure

Scalable

At least one distinct person should be assigned the accountability for each role. That person must have prior relevant delivery capability even if the person is not assigned delivery responsibility. Figure 3-3 shows the organizational structure for the scalable extended roles.

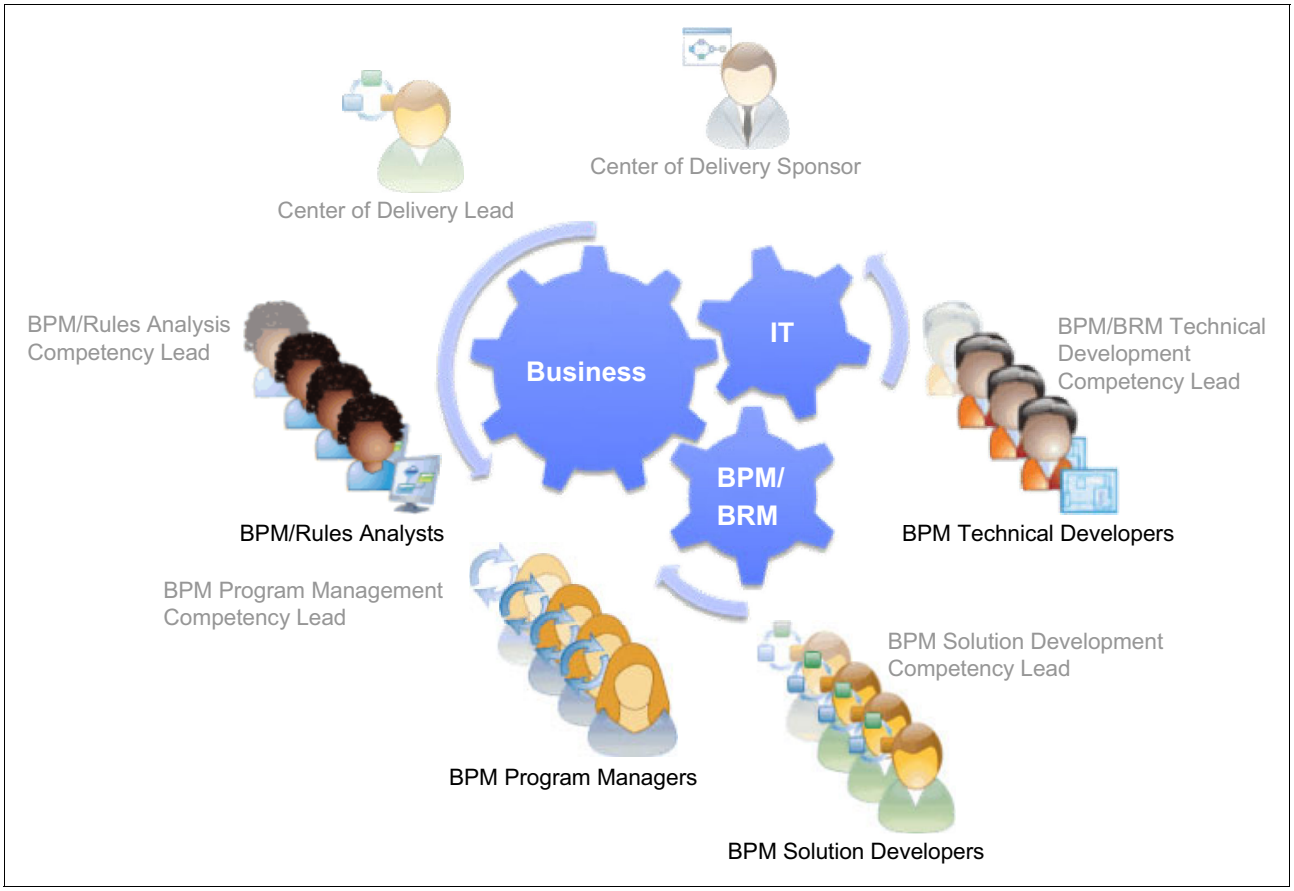

Figure 3-3 Scalable roles organizational structure

Figure 3-4 shows a composition view of a Solution Team.

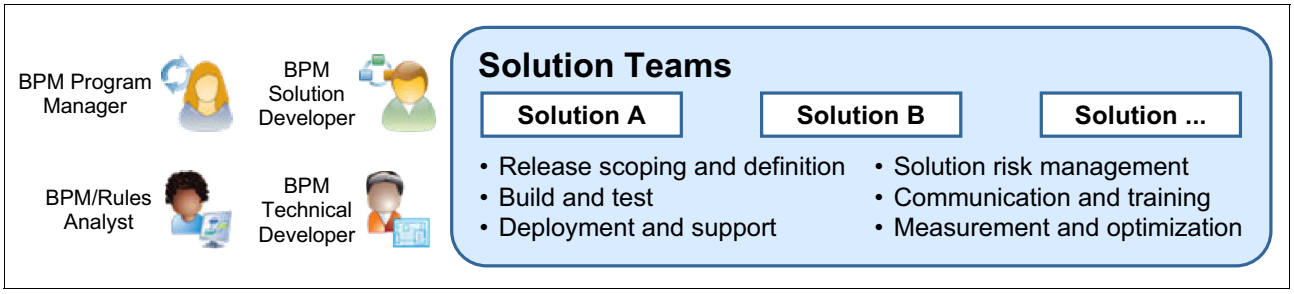

Figure 3-4 Composition of roles

At least one distinct person should be assigned the accountability for each role. That person must have prior relevant delivery capability even if the person is not assigned delivery responsibility.

4

Shared infrastructure

This chapter describes the key focus area of the shared infrastructure in a BPM Center of Excellence. This chapter contains the following sections:

4.1 Purpose of shared infrastructure in a BPM CoE

Even the simplest BPM solution has the potential to have a major impact on your organization. Companies are often surprised that a successful pilot or proof-of-concept business process application can quickly become mission-critical. When you fully embrace BPM, you should understand the implications; the processes you create, automate, and deploy run your core business. Without a solid platform and practices, your users become idle and your business comes to a halt. Therefore, when you build the initial BPM platform, it must be scalable, available, and secure, and be sized appropriately to address your foreseeable load.

One of the initial steps of planning for the shared infrastructure element of BPM is to design the eventual platform that will host the BPM system (BPMS) and its various process applications. This step can be difficult because, at this early stage, you might not have firm requirements for the various process applications (built on the BPM platform) you will implement, deploy, and maintain on the BPMS. Nevertheless, your shared infrastructure must handle initial process application development and scale to support user adoption of initial process applications and also expansion for new process applications. This endeavor can be demanding for the individuals who are responsible for creating a BPMS for those first 18 months.

This section describes the shape of the organization that is in charge with building the shared infrastructure, and the organization's areas of influence, and roles and skills.

4.2 Responsibility areas for shared infrastructure in a BPM CoE

Areas of responsibility for the shared infrastructure element of a BPM CoE include the following key focus topics, with respect to the BPMS platform that is necessary for implementing, deploying, monitoring, and improving business process applications.

- Availability
- Performance
- Scalability
- Security
- Application governance

In addition to defining these areas, the shared infrastructure element of a BPM CoE must also engage in activities that continuously advance and implement them.

Ultimately, at a lower level, this group (shared infrastructure element) is responsible for areas such as hardware, the continuous "greening" of platforms, administration, deployments, and many traditional IT areas. However, all of these tactics must ultimately support one of the goals in the previous list. *The purchase of four rather than six servers is not the goal; the goal is guaranteeing 95% availability.*

4.3 Success metrics for shared infrastructure in a BPM CoE

The success metrics of this shared infrastructure organization are similar to most traditional IT success metrics that handle shared infrastructure for enterprise platforms. The key difference is that this organization focuses on the success of the business solutions that are hosted on these platforms, and not only the platform itself.

The success metrics are as follows:

- Solution uptime/availability
- Solution responsiveness
- Scalability of operational services including logging and error handling

4.4 Organization of shared infrastructure in a BPM CoE

After these areas (listed in 4.2, “Responsibility areas for shared infrastructure in a BPM CoE” on page 46) are specifically identified and given concrete articulation, the next important step is to give shape to the actual shared infrastructure organization that will advance the areas of responsibility. This organization can be envisioned along the following typical areas:

- Roles
- Skills
- Organizational Structure

4.5 Areas of responsibility in depth

One of the initial steps of planning for a BPM Center of Excellence is to design the eventual platform that will host your BPM process server. This step can be difficult because at this early stage, you might not have firm requirements for the applications that you will host. A BPM CoE must prepare to support current process applications and plan to expand the BPMS to support future applications.

This chapter offers a system outline that can give you enough initial system capacity, which you can scale to meet the future demand successfully.

4.5.1 Availability

Availability is related to the concept that our platform can survive system level failures. *Availability* is a measure of the time that a system is functioning normally, and also a measure of the time the recovery process requires after a system component fails. Reducing downtime is the most critical aspect of highly available systems. A highly available system is therefore one that can quickly recover from system failures and can show little or no impact to users during such events. Availability depends on the ability of replicated components to efficiently fail over.

IBM BPM is built on IBM WebSphere Application Server. Therefore, IBM BPM benefits from the inherent availability characteristics and capabilities of WebSphere Application Server and can benefit from the years of experience IBM invested in building highly available systems. This paper does not provide details of high availability concepts for WebSphere Application Server, but attempts to bring attention to those system components that might require additional consideration when building a highly available BPM CoE platform. More information

about WebSphere Application Server availability is in *WebSphere Application Server Network Deployment V6: High Availability Solutions*, SG24-6688:

http://www.redbooks.ibm.com/redbooks/pdfs/sg246688.pdf

Topology

The first step is to determine the topology of the deployment. Topology often indicates availability. Topology can include clustering, load balancers, web servers, proxies, database replication, and other items. Regardless of system load, you want to create an environment that can sustain quality of service, even in the event of a component failure.

IBM BPM provides a network deployment installation option, sometimes called the *golden topology*, that provides a high level of availability. A network deployment environment contains a collection of interconnected servers and clusters to run your business process applications.

Clustering across more than one node provides availability in the event that a node stops for any reason. A best practice is to have nodes running on separate hardware, or separate LPARS or VMs that are running on separate hardware, to ensure availability in the event of a hardware error.

Mitigating other points of failure

Availability is not limited to the application tier. There are many other potential areas for failure in a typical enterprise application server infrastructure.

Deploying your BPM platform within an infrastructure that is tolerant to loss of components is important. For example, we must be prepared for the loss of an IP sprayer, HTTP server, or firewall or router. Building in redundancies for these components can eliminate single points of failure and reduce subsequent downtime.

4.5.2 Scalability

From the beginning, invest in enough initial system capacity. False economies in the early stages can cause exponentially more cost and pain later. A two-node cluster running on 4-core hardware provides most organizations more than enough initial capacity to handle a successful CoE program.

A goal is to be able to increase system capacity when new intensive process applications are onboarded into the CoE and when existing process applications become widely adopted and demand more resources. *Scalability* refers to a system's ability to readily adapt to these increasing demands while still meeting business objectives. Taking scalability into account when you initially design a business process management platform is critical. You must select appropriate hardware, operating system, topologies, and virtualization technologies to optimize your potential to meet future load requirements.

The two types of scalability are vertical and horizontal:

- Vertical scalability is the ability to add more resources (cores, CPUs, memory) to gain performance.
- Horizontal scalability is the ability to add more hardware (machines) to gain performance.

By its nature, the network deployment (ND) option for IBM BPM lends itself to horizontal scalability. The clustering of nodes allows you to expand system capacity by adding more machines. Ideally, scaling up a topology arbitrarily to match the required load is possible. The WebSphere Application Server Network Deployment infrastructure provides this capability.

Vertical scalability is more often achieved by using features of the underlying operating system or virtual machine. Vertical scalability is an attractive option because it does not involve adding servers in response to demand for new capacity and can reduce the need for more datacenter space, power, cooling, network cabling, data storage and administrative resources.

Recommending an initial system

Because you will unlikely know the capacity requirements of all eventual process applications that are hosted by your CoE environment at the time it must be designed, the best approach might be to simply build a system with known capacity and scalability attributes. With this approach, you can grow your environment as required over the life of the process application system.

Although you do not yet know the characteristics of the process applications that will eventually be hosted by your CoE environment, you might know about certain aspects of your organization. Imagine a scenario where a company has fully embraced BPM and that every employee will, in some way, interact with the system. One way to make a rough calculation is to consider the maximum number of concurrent users that will ever use the system. In the case of a successful BPM program, this number will be every employee. If your BPM program is targeted only at a certain department, then it will be every employee of that department.

Testing revealed that, for a mildly complex process application, 900 concurrent users can be supported on a 2-core X86 2.6 GHz system. This system also nicely scales to 1800 users on a similar 4-core system. Table 4-1 describes the configurations.

Table 4-1 System configurations

Number of users	Hardware
Less than 900	X86 2.6 GHz 2-core
A range of 900 - 1800	X86 2.6 Ghz 4-core
Greater than 1800	Several options exist. BPM has demonstrated that it can support more than 10,000 concurrent users on an 8-core IBM POWER7® system running an IBM AIX® operating system. This way can be combined with horizontal scalability to address very large concurrent user requirements.

Being conservative, if you have fewer than 1000 potential business process users, a 4-core system might be an appropriate starting point for your initial CoE platform.

Recall that there are availability requirements, which are best addressed by having a 2-node cluster where the nodes exist on separate hardware. This way effectively doubles hardware requirements: instead of having a single 4-core machine, you can have two 4-core machines in a cluster. Although this approach can handle twice the load, you should design the system so that, in the event of a node failure, the surviving node can handle 100% of the load.

A 2-node cluster running on 4-core hardware can provide most organizations more than enough initial capacity to handle a successful CoE program.

Medium-term solution-based partitioning

As the “starter” system begins to mature and take on load from hosting more BPM solutions, it might make sense to consider partitioning resources according to specific categorization classes (such as criticality, security, region, or department).

No rule says that all process applications must be deployed to a single process server runtime environment. As you approach the capacity of your existing production process

server environment, you must consider expanding into multiple production server environments. The most natural way to approach this option is to roll new process applications into new environments. Other options are to create departmental, regional, or security-specific runtime environments.

In fact, if the expected nature of your foreseeable process applications are strictly departmental, now might be the time to make the decision to create departmentally partitioned runtime environments. As of BPM 7.5, it is not practical to migrate a business process application and all of its in-flight data from one process server to another. Therefore, it is even more important to make the correct platform decision now, before you reach a capacity issue and have to handle the difficult situation of migrating a process application and its data to another platform.

Long-term capacity planning

A shared infrastructure BPM deployment will eventually consist of multiple BPM process applications. It is important that these applications coexist without affecting the performance of their neighbor applications that share the same BPM platform. Your BPM runtime environment has finite resources including CPU, memory, network bandwidth, database throughput, and I/O capacity. These resources all must be shared by the hosted business process applications and must be used in a way that does not introduce performance degradations or failures. Therefore, some level of performance testing and capacity planning is required to project the potential impact of a new process application into your BPM runtime environments.

A strong suggestion is for a capacity planning exercise to be a part of your business process on-boarding practice. Further, business processes are never static; they change over time, take different paths based on market, seasonal, and business conditions. By their nature, business processes are in a constant state of evolution. Therefore, be sure to make capacity planning a regular part of your release cycle.

A reasonable capacity planning exercise naturally calls for regular capacity testing to discover the limits and needs of the existing system against the planned future system. The best possible capacity test might be one that exercises every deployed process application concurrently. Although it is theoretically possible to concurrently test all process applications under a single massive test plan, doing so is not always practical. We are often constrained by time, budget, and resources. Compared to testing the entire system of process applications, a typical one-process-application BPM deployment is relatively easy to test. This chapter introduces a methodology for testing individual process applications and extrapolating those results to determine plausible system impact.

4.5.3 Security

Your business processes make up an essential part of your business. They incorporate your intrinsic intellectual property and make it available, consumable, and usable by your workforce. Although it is evident that BPM promotes and provides continuous improvement, business agility, and process visibility, there is a price to pay for such benefits. The simple act of exposing your processes and data to your users implies a substantial responsibility to protect and track that data.

From a governance perspective, a CoE must indicate how your data and processes are protected and how process actions are recorded and can be audited for both legal and business requirements. A CoE must establish the infrastructure and practices that will protect your intellectual property from both internal and external threats.

You can think of your security concerns as a stack of environments, pertinent to three areas: platform, development, and runtime. Table 4-2 provides details.

Table 4-2 Security environments

Area	Description
Platform	Chronologically, the platform is the first layer of the stack that is put into place. The platform must be secured from inappropriate access. Access to administrative interfaces must be limited.
Development	The next layer to emerge is development. We must create permissions that allow developers to have access to the code base and application administrators to administer the process applications. We must allow read-only users access to the process application.
Runtime	Runtime is a factor. Runtime users must be provisioned so that they can be mapped to process participant groups.

You must consider the types of users when you establish enterprise-level BPM security. Each type of user has specific access requirements. Table 4-3 provides details.

Table 4-3 User security requirements

Users	Description
Platform administrators	Users that are charged with the security and availability of the BPM platform.
Application administrators	Users that are the technical owners of a business process application for its entire lifecycle.
Application developers	Users that develop specific business process applications.
Applications business users	Users that may need read-only access to a business process at design time.
Standard Users	Users that interact with the business process at runtime.

For details about BPM security, see *IBM Business Process Manager Security: Concepts and Guidance*, SG24-8027:

http://www.redbooks.ibm.com/Redbooks.nsf/RedpieceAbstracts/sg248027.html?Open

4.5.4 Application governance

The shared infrastructure group should also be responsible for how process applications are deployed to various runtime environments (including production). This responsibility includes defining procedures for acceptance, processes for approval to promote into each runtime environment, best practices for these actions, and clearly defined roles around them

In addition, from the perspective of CoE platform support, a goal is to have well-behaved process applications deployed in environments. A well-behaved process application requires little to no support from the platform team, does not exceed its projected capacity estimates,

and does not affect other process applications. Instilling a basic set of coding and process architecture best practices can help in meeting these goals.

One of the overriding goals of the platform team is to promote self-reliance for the process teams. The less the process teams have to ask the platform team for information or access to resources, the more efficient the process teams can operate.

Deployment

In IBM BPM V8.0 and later, you can apply a governance process that provides a control over the installation of process applications. When this governance process is in place and enabled on a process application, requests that are made from IBM Process Center to install a snapshot of that process application, pass through a governance process. The process application snapshot is installed on a process server only after the approvals that are defined in that governance process are completed.

You can find a sample governance process application on the IBM BPM Sample Exchange at the following location:

http://bpmwiki.blueworkslive.com//x/AoRgAQ

The shared infrastructure element of the BPM CoE is responsible for defining processes, best practices, and roles in the following key focus areas.

Deployment acceptance criteria

Define the release criteria for the delivery team to follow so that a process application can be deployed on an available runtime environment. These criteria might include minimum standards such as installation instructions, use of an export file, standard unit test results, standard business information about deployment packages, and so on.

Deployment execution processes

What are the steps that must be followed to deploy a candidate snapshot (build) of a process application into a target runtime environment? In some cases, this deployment might involve certain approval steps from both business and IT. Deployment might also involve prerequisites. For example, deployment to user acceptance testing (UAT) might be prohibited until after the process application is deployed in QA and accepted by the business process owner.

Deployment rollback processes

In certain cases, an executed deployment might need to be rolled back because of unforeseen issues, which might be technical or business-related. In these scenarios, a defined process must be in place for rolling back a deployment into its last accepted state. This definition again might require approvals from both business and IT, certain acceptance criteria, and perhaps a *break-fix* environment to replicate the offending condition that caused the rollback request in the first place.

Go to the IBM BPM information center for more information:

http://bidoc.torolab.ibm.com:8000/help/topic/com.ibm.wbpm.admin.doc/managinglib/topic/managing_process_applications_E.html

Auditing

Auditing process applications can take various forms. The shared infrastructure element of the BPM CoE is responsible for determining which audit types are required for the organization, and then to mandate the appropriate design, development, deployment and operational best practices to ensure compliance.

Business-level auditing

This type of auditing is also known as *application-level logging*, which differs from system logging. Application-level logging logs data from a business perspective and contains information such user name, process name, process instance, process step name, task ID, and associated relevant business data.

Without application-level logging, finding the problems, understanding process flow, or auditing user interactions can be difficult.

Compliance auditing

This type of auditing is typically used to satisfy legal regulations regarding who did what, when, why, and who approved it. Often, to remain compliant, applications that fall under SOX or other federal regulations must be able to produce audit logs of significant events.

Technical auditing (logging)

The BPM platform logs data from a system perspective. BPM uses the common WebSphere logger to log errors, warnings, and debug messages at the platform layer. By default, all logs are written to the servers `SystemOut.log` file. This log file is not commonly available to process application development teams, because it is located deep within the WebSphere deployment.

Interjecting business log records into the system log is not appropriate:

- System log records are probably not meaningful to the business developer.
- System logs might contain sensitive information about the system or even other process applications that are running on the same platform.
- System logs might be inaccessible to the developers.

Populating logs: A best practice is to have each process application populate its own logs. This practice allows for the separation of potentially confidential information between teams, and allows easy access to the logs for developers and application support personnel.

Error handling

If the platform support team must be contacted each time an application error occurs, the team might easily be overwhelmed. Therefore, an important approach is for process applications to do as much *self-service* error handling as possible. Errors should be properly caught at the service and process levels; processes can and do fail, which is universally recognized. By using a Process Administrator participant group in process diagrams can help to rectify top-level failures.

For example, system lane activities do not have a user interface, so errors usually cannot be caught and serviced within the services themselves. Therefore, catching exceptions at the BPD layer is important so that the process flow can be sent to application support personnel to handle and retry.

Often, the business will resist the concept of an Application Administrator. It might be a foreign concept to the business or it might be a topic that was not discussed during process discovery. As part of a process review, the question to be asked is “What happens if this activity fails?” A failed activity is a business problem and requires a business solution.

For more information about error and exception handling in IBM BPM process applications go to the following location:

`http://bpmwiki.blueworkslive.com/display/commwiki/Exception+Handling`

4.6 Organization in depth

The organization of the shared infrastructure element of a BPM CoE requires specific skills that are envisioned in roles, which are then organized in a decision-making and executable structure against the areas of responsibility of those roles.

4.6.1 Roles

A useful way to think of the shared infrastructure roles that are involved in creating a BPM CoE is as follows:

1. Start with a core group.
2. Later, expand into an extended set of roles; these roles will be specific to your organization and support the core group.

Core roles

Core roles are described in this section.

Executive Sponsor

This role is for the highest-level executive who has responsibility for the shared infrastructure (most likely in the form of direct ownership).

Platform Support Manager

This person is in charge of the platform support team that “owns” the BPM platform.

- Monitors system runtime performance.
- Provides Level 1 support for runtime environments.
- Works with application owners and application support teams to help resolve issues.
- Establishes common patterns and sets standards for application logging (business event versus system or technical logging) error handling, and process instance recovery.
- Ensures compliance with code promotion standards.

BPM Technical Architect

This person makes key decisions regarding the BPM software stack. The same person is also a member of the Center of Strategy.

- Plans and evolves system capacity and architecture requirements.
- Works with the IT Architect to develop best practices for integration into the enterprise architecture stack.
- Works with IT Architect to ensure all BPM touch points are secured.
- Establishes authentication and authorization standards for the BPM platform.
- Establishes common standards in regard to application logging, error handling, and recovery.
- Establishes platform topologies that provide appropriate scalability and availability.
- Establishes code promotion standards.

IT Architect

This role is a senior IT Architect who helps navigate through corporate compliance, topologies, and integrations.

- Ensures compliance with corporate IT standards and practices.
- Helps navigate through corporate IT governance bodies.
- Proposes appropriate integration technologies that incorporate existing corporate assets such as SOA, ESB, or data marts.
- Ensures usage of enterprise services in BPM solutions.
- Establishes overall security standards for intellectual property protection.
- Complies with corporate disaster recovery requirements.

Scalable roles

Scalable roles are described in this section.

Platform Administrator

This role has the following responsibilities:

- Ensures the integrity, security, and availability of the overall system.
- Creates new process applications, provision process applications, administer user authentication.
- Typically, this role is a full-time commitment from a member of the Platform Support team.

Network Administrator

This role has the following responsibilities:

- Offers specialized skills in the domain of the DMZ tier (“demilitarized zone”).
- Takes direction from the Platform Support Manager on overall requirements for the BPM solutions.

Database Administrator

This role has the following responsibilities:

- Implements and maintains the database tier that supports the BPM solutions.
- Takes direction from the Platform Support Manager on overall requirements for the BPM solutions.

BPM Support Engineer

This role understands the technical composition of the solution, and also the business problems it is intended to solve.

4.6.2 Required skills and experience

Table 4-4 describes skill and experience levels for each role.

Table 4-4 Skills and experience levels

Role	Required skills and experience
 **Platform Support Manager**	► Respected as a senior operational leader in the organization ► Understands the organization's strategic direction ► Aware of the overall enterprise IT strategy ► Aware of the organization's current governance committees and processes
 **BPM Technical Architect**	► Experience with process design and change management ► Respected as senior technical leader in the organization ► Experience with iterative and agile methodology or other similar RAD-based methods ► Aware of and has direct influence on the overall enterprise IT strategy ► Experience championing enterprise technical change
 **IT Architect**	► Experience with system design, requirements gathering ► Respected as senior technical leader in the organization ► Aware of the overall enterprise IT strategy

4.6.3 Organizational structure

This section describes the suggested organizational structures for the shared infrastructure element of a BPM CoE.

Core

Figure 4-1 shows the organizational structure for the core roles.

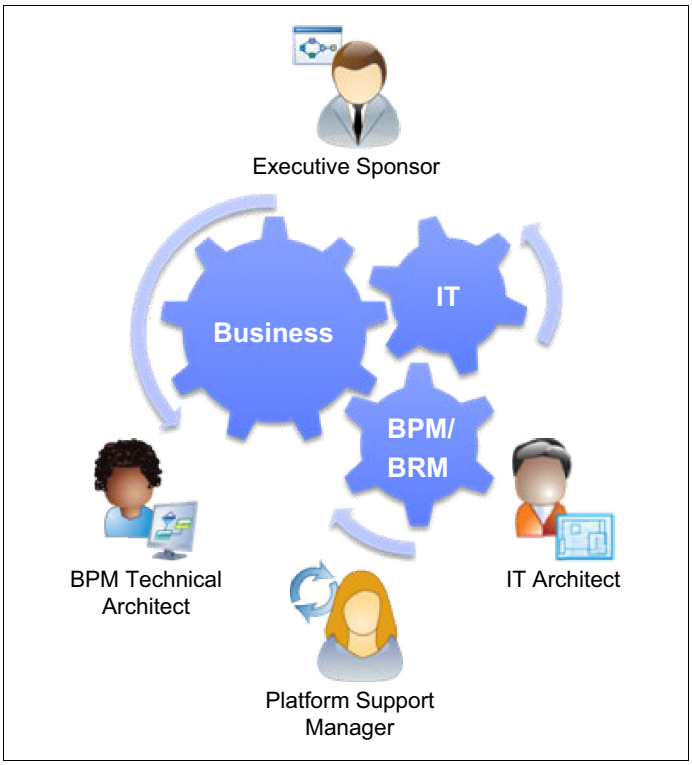

Figure 4-1 Core roles organizational structure

Scalable

Figure 4-2 shows the organizational structure for the scalable extended roles.

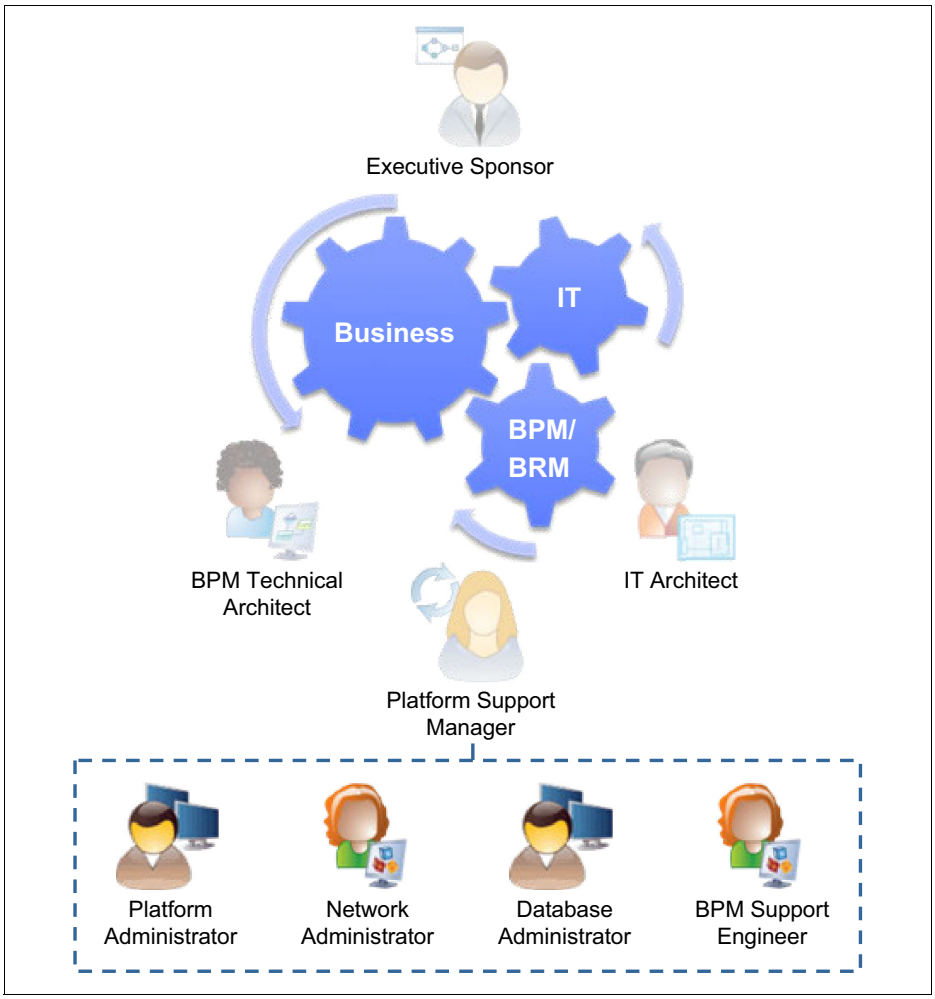

Figure 4-2 Scalable roles organizational structure

Related publications

The publications listed in this section are considered particularly suitable for a more detailed discussion of the topics covered in this paper.

IBM Redbooks

The following IBM Redbooks publication provides additional information about the topic in this document. Note that some publications referenced in this list might be available in softcopy only.

- *IBM Business Process Manager Security: Concepts and Guidance*, SG24-8027
- *Scaling BPM Adoption: From Project to Program with IBM Business Process Manager*, SG24-7973
- *WebSphere Application Server Network Deployment V6: High Availability Solutions*, SG24-6688

You can search for, view, download or order these documents and other Redbooks, Redpapers, Web Docs, draft and additional materials, at the following website:

ibm.com/redbooks

Online resources

These websites are also relevant as further information sources:

- CIO Priorities, from Gartner, Inc.

  http://www.gartner.com/technology/cio-priorities/2012-cio-agenda.jsp
- Goal Setting Guide website for more information:

  http://www.goal-setting-guide.com/goal-setting-tutorials/smart-goal-setting
- IBM BPM Community and BPM Design Patterns

  http://bpmwiki.blueworkslive.com/display/commwiki/Design+Patterns
- IBM BPM Community and BPM Implementation Best Practices

  http://bpmwiki.blueworkslive.com/display/commwiki/Best+Practices+Recommendations
- IBM BPM Community and BPM Toolkits

  http://bpmwiki.blueworkslive.com/display/samples/Toolkits
- IBM business process management curriculum

  http://www.ibm.com/software/websphere/education/curriculum/bpm/
- IBM business process management resources for business and IT

  http://www.ibm.com/developerworks/websphere/zones/bpm/

- Sample governance process application

  http://bpmwiki.blueworkslive.com//x/AoRgAQ
- IBM BPM information center

  http://bidoc.torolab.ibm.com:8000/help/topic/com.ibm.wbpm.admin.doc/managinglib/topic/managing_process_applications_E.html
- Error and exception handling in IBM BPM process applications

  http://bpmwiki.blueworkslive.com/display/commwiki/Exception+Handling

Help from IBM

IBM Support and downloads

ibm.com/support

IBM Global Services

ibm.com/services

Creating a BPM Center of Excellence (CoE)

Redpaper™

Transform your entire enterprise to embrace BPM as a culture

Organize individual BPM initiatives into a cohesive company-wide vision

Succeed with organizational structures and frameworks

Your first business process management (BPM) projects, although radically different in the tooling and the methodology for those people who are directly involved in the project, will be chartered, funded, measured, and managed as with any other IT project. However, for an enterprise to accelerate the radical value that a BPM project proves, the enterprise must transform. Change must occur around projects. Funding, staffing, governance, infrastructure, and virtually every aspect of how BPM solutions are implemented, must change before the enterprise can mature to meet those strategic goals that accelerate the value of BPM beyond a handful of projects.

This change is the BPM transformation. Unlike the challenges of the first few BPM projects, this transformation represents an unprecedented challenge to those enterprises that are midway through the pursuit of BPM excellence.

This IBM Redpaper publication seeks to eliminate the uncertainty that organizations face in this next generation of BPM, maturing beyond the success of BPM projects. The goals and concepts of dozens of mature BPM organizations are consolidated here and categorized to provide you with clear mandates, with hope that this clarity will provide purpose, and that this purpose will drive excellence. The audience for this IBM Redpaper includes Executive Sponsors, Team Leaders, Lead Architects, Infrastructure Owners, and in general, anyone interested in transforming the enterprise around BPM principles to create a Center of Excellence (CoE).

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